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The Association does not accept the responsibility for the opinions of contributors. Offensive personalities must be avoided.

IAN MACLAREN tells somewhere a sweet story of his native land, that while walking leisurely along a country road during midday of a very warm day, he met a bonnie wee lass, all humped up and red, and puffing with the weight of a chubby laddie she was carrying.

"Isn't he too heavy for you?" asked the dominie.

"He's not hivvy, sir," came the answer, with a smile of loving pride, "he's ma brither!"

How well we may apply this beautiful lesson to our lives, to our Association, but we desire to utilize it for the text of our

CHRISTMAS WISH FOR YOU.

Before the next number of the Journal comes to you, another Christmas will have come and gone. It constitutes an event in the lives of all people in civilized countries, be they young or old, that is looked forward to with joy, though mingled with much sadness and sorrow in turbulent Europe, nor is there entire absence in this peaceful country of ours. When sadness and sorrow may be displaced by a kind act, both the recipient and contributor share in the intensity of the joy. No doubt, each one of our members will spread some happiness in this way, for what is Christmas unless it brings such opportunities? We hope that all will participate in such joyous occasions of well-doing, for surely nothing contributes greater pleasure, and also revives the knowledge of the brotherhood of man. Therefore, we can think of no better wish for our readers, accompanied by the expressed hope, that all may enjoy this happy season uncontaminated by sadness or misfortune of any kind.

THE NEW YEAR.

The New Year, while carrying the legacies of the old world, is ours to mold. We cannot afford to begin wrong, and a proper observance of the days that are upon us psychologically for the trials and tribulations, successes and failures of the next cycle of time—the calendar year.

We may be assured that while as pharmacists we have shared great responsibilities, larger service is expected of us in the coming years, because of greater opportunities which we cannot afford to neglect. Let us pause for awhile, take stock, get our bearings and meet the responsibilities and accept of the opportunities with a well calculated gait and in an optimistic spirit.

Section on Education and Legislation

Papers Presented at the Sixty-Third Annual Convention

MINUTES OF THE SECOND SEPARATE SESSION OF THE SECTION ON EDUCATION AND LEGISLATION.*

The second session of the Section on Education and Legislation was called to order by Chairman Freericks in the Red Room, Bellevue Hotel, San Francisco, on Thursday, August 12, 1915, at 2:15 p. m.

Professor E. L. Newcomb acted as Secretary pro tem.

Chairman Freericks: The report of the Committee on National Legislation and also the report of the National Drug Trade Conference seem to have gone to the General Session. The next order of business will be the consideration of the report of the Committee on Regulations for Transportation of Drugs by Mail of which Mr. B. L. Murray is the Chairman.

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.

At the annual meeting held in Detroit in August of last year, 1914, the Committee on Post Office Regulations for the Mailing of Poisons made a full report on the situation, taking up the causes of the unfortunate position in which we find ourselves and setting forth at length the laws and regulations governing or rather preventing the mailing of poisons. (See *Journal American Pharmaceutical Association*, February, 1915.) The Committee's report was heard and accepted, and the Committee itself discharged. It was evident, however, that work of this kind, to be of value, must be continuing and some weeks after the August meeting the Committee, slightly rearranged, was reappointed. It is now known as the Special Committee on Regulations for Transportation of Drugs by Mail.

The situation as depicted in our last previous report remains unchanged today, no new laws having been passed and no new regulations having been promulgated. It is still illegal to send poisons through the mails, even though they can be packaged in such way as to make them safe for all that handle them. It is a daily occurrence that small parcels containing poisons must be handled by express, and usually at greater expense, merely because we forbid ourselves the use of our parcel post. The express companies handle the packages with entire safety both as to their employes and as to the goods. In the meantime our Post Office Department in Washington instead of being allowed to increase its usefulness, is issuing statements showing millions of expense beyond its receipts.

It has been suggested by some that each individual take the subject up with his postmaster, urging an extension of the parcel post so that poisons may be handled through the mails. It might stimulate the Post Office Department to a closer consideration of the subject if it were brought to the attention of the Department constantly by the postmasters themselves. If it were taken up on the basis of an extension of the parcel post as well as a needed added facility in the drug business it would perhaps be of value.

*Papers read before the Sections will be accompanied by the discussions and are therefore omitted from the minutes.

Your Chairman, who is writing this report because he feels it is only a report of progress, expresses the view of the Committee as shown by correspondence that two fields are open to us, and both must be cultivated. First, we must continue to voice our disapproval of present conditions, as we do from time to time, and second, exert our influence to secure the passage of a national poison law especially drawn to regulate interstate commerce in poisons. Handling poisons in the mails will naturally follow the enactment of such a law.

The Committee has made a study of the above two fields of operation during the year and has noted with interest the attention that other bodies also are giving to the subject. It is therefore suggested that the work of the Committee be carried on through the coming year or years, recognizing at once that the work is likely to be lengthy. The Chairman would be glad to suggest one or two more names to add to the membership of the Committee.

Respectfully submitted,

B. L. MURRAY, Chairman.

Chairman Freericks: You have heard the report of the Committee, what is your pleasure?

It was moved by W. C. Anderson, and seconded by Dr. Otto F. Claus, that the report be received and that it take the usual course.

Chairman Freericks: Are there any remarks? The Chairman of the Committee suggests one or two other names for increasing the membership of the Committee. Do you desire to take that into consideration at this time or shall we simply receive the report and let it take its usual course?

Dr. W. C. Anderson: I wish to ask how the number of members of that Committee is provided for?

Chairman Freericks: The Committee was appointed originally by this Section two years ago. It is a Committee of this Section, and as I understand it, the number of the Committee may be increased.

The motion having been regularly made and duly seconded, it was declared carried, after voting thereon.

Chairman Freericks: Now, is there any desire to act upon this recommendation?

Dr. W. C. Anderson: I move that the request of the Chairman of this Committee be complied with and that the Committee be increased by the addition of two extra members.

(Seconded by Dr. Otto F. Claus.)

Mr. R. F. Troxler: I would like to amend Dr. Anderson's motion and offer a substitute.

The Chairman intimates that he would like to suggest the names of the two additional members. I move that he be invited to suggest them and that he appoint them on the Committee. Is that agreeable?

Dr. W. C. Anderson: I will accept that.

Chairman Freericks: The amendment, as proposed by Dr. Troxler, is accepted by the mover of the original motion and his second.

The motion carried.

Chairman Freericks: The next order of business is the report of the Committee on Survey of the Pharmaceutical Teaching Institutions, by Mr. Hugh Craig, Chairman.

The Chair would accept the opportunity of saying that this is a most impor-

tant work. The report is the first one made by the Committee, and since the task undertaken is an enormous one, you must look to the fact that it is only the beginning of the work, but I believe you will find it of great interest. Miss Cooper has kindly consented to read this report.

REPORT OF COMMITTEE ON THE SURVEY OF TEACHING INSTITUTIONS.

Your Committee's report will be one of progress and suggestion. The progress has not been very marked because the Committee was not appointed until early in the year 1915 (through no fault of the honorable Chairman of the Section); and because none but very busy members could be secured to act on this Committee—a common condition—and also because the Committee was quite without instruction as to the scope of its purpose.

Your Committe has hesitated to essay the work which, doubtless, was intended for it, that is, a classification of the pharmacal teaching institutions of the country, because it had no basis for such a classification and did not feel empowered to define a basis and operate thereupon without first submitting the scheme of classification to the creating body for approval. Your Committee, therefore, takes this occasion to *recommend that this Section prepare a classification of the teaching institutions giving personal instruction in pharmacology, and for pharmacal ends, in the allied subjects embraced within the examinations by boards of registration in pharmacy, on the following bases*:

a—Degrees conferred.
b—Actual entrance requirements.
c—Length of courses.
d—Scope of courses.
e—Obligations as to attendance.
f—Passing grades.
g—Number and qualifications of members of faculty.
h—Value of property, real and chattel, owned by institution.
i—Affiliation with a university or other educational group.
j—Ratio of fees to operating expenses.

Your Committee feels that this Section may well interest itself in the several matters embraced in the foregoing list of bases for classification and that it can do a great deal to bring about uniformity, at least in, say, three, general classes, of teaching institutions, and assist materially in eradicating the evils which are commonly complained of in connection with the practices of teaching institutions in these regards.

With regard to bases a, b, c, and d, your Committee feels that the path blazed by the American Conference of Pharmaceutical Faculties should be followed, but that some further endeavor should be made to assure a proper rating of qualifications in preliminary education, other than that obtained in a high-school, in other words, of the so-called "equivalent." This "equivalent" should be based upon subjects which are of practical value to the future chemist, and the required counts or units should cover not less than five subjects, three of which should be: English, mathematics and physics.

Your Committee recognizes the delicacy of any attempt to standardize teaching faculties, but it believes such a step to be an important one and a necessary one. In the first place, those who set themselves up as teachers should know, not only what they are teaching, but as well how to impart knowledge. It would be well if they were required to have some training in pedagogic practice. On the other hand, the efforts of a teacher, without actual practical experience in the operation of a drug store, to instruct students in the commercial phases of pharmacal practice are quite likely to prove as disastrous in the future life of the student as have been many of the purely theoretical ideas of the so-called "efficiency experts." Very little of the very necessary psychology of selling can

be learned from books, the salaries of advertising experts notwithstanding. Of course, a retail druggist, with the druggist's usual lack of familiarity with accounting, is an equally poor teacher. And commercial training is the one most needed qualification in the retail drug business today, because the commercially trained young man will recognize the folly of setting up in business with more mortgage than capital in his investment, and much debauching of pharmacy and unfair competition will be obviated.

A question that calls for careful consideration in the standardizing of teaching faculties is the effect of recruiting the faculty from among students of the institution. Few, if any, teachers can impart their full knowledge of a subject to a student; and to hand down from teacher to student the task of instruction in any one subject is to court the detrimental effects of what may be styled inbreeding.

Another fault, somewhat of a similar relation, is that of manufacturing a faculty by conferring higher degrees upon complacent, yes, eager, prospective or acting teachers. This practice is widely at odds with educational ethics and should be frowned upon by this Association.

So much for comment upon the Committee's suggestions for a scheme of classification. It is, of course, not the idea of the Committee that the rankings on the several bases, suggested above, are to be cumulated to indicate the school of the highest grade. Some of the bases are closely related and may be cumulated quite properly; but others are more informative than essential in this regard.

It is the belief of your Committee that this Section should take cognizance of other phases of pharmacal education than that of the school giving personal instruction. There are a number of correspondence schools in pharmacy, some of which, to the personal knowledge of members of the Committee, are so lax in their methods of gauging the progress of their students as to give very high rankings to students who have answered the questions apparently with an open book before them, because, separated from the informative volume, they are totally at a loss for an answer to the simplest questions. It is quite properly the duty of this Section to make it possible for prospective students to get the correct appreciation of the value of a correspondence course. If this Association fails to point out clearly the difference between knowledge and instruction, it does not serve the purpose for which it stands in the general pharmacal opinion.

In several cities the Young Men's Christian Association conducts classes in pharmacy, and the practice is spreading. The instruction given in these classes compares favorably with that given in the minor schools of pharmacy. As long as there is no general adoption of graduation from a standardized school of pharmacy as a prerequisite for examination by a board of pharmacy, this Section should pay as much attention to the supply of properly qualified pharmacists, from whatsoever source, as to the supply of teaching institutions of a certain standard: it should interest itself in every means of educating the pharmacal novice. That interest on the part of this Section in the Y. M. C. A. work will be welcomed is indicated by the following quotation from a letter received by the Chairman of your Committee from Mr. George B. Hodge, the Secretary for the educational department of the International Committee of Young Men's Christian Associations:

"We shall be glad for your helpful suggestion with reference to any step we may take or ought to take, that such courses may be strengthened, improved, and in keeping with the standards of your general association."

Of particular interest to those who have any concern for the education of the pharmacist has been the action of the educational authorities in several cities, Cincinnati and Chicago being prominent examples, in coöperating with local pharmacal organizations to provide part-time instruction in the high-schools for apprentices in drug stores, the purpose being the commendable one of affording an opportunity for the apprentice to acquire the preliminary educational qualifications required by the better colleges of pharmacy, and very necessary for the

welfare of pharmacy. By a proper correlation of the apprentice's work and study in the store—it is to be hoped that the old apprentice system has not been so far neglected as to make the boy's service all work and no study,and with the instruction given in the high-school, this plan will do more than anything else to provide educated and able pharmacists. It should, therefore, have the heartiest approval of this Section, and the members of this Association should urge its adoption in every community and lend every assistance in the laying-out of a scheme of instruction, properly correlating the instruction given in the school and that given by the preceptor. *Your Committee recommends that this Section take steps toward the adoption of a scheme or curriculum for correlated instruction of this sort.*

The growing importance of the trained sanitation officer to every community is sufficient reason for this Section to interest itself in the education of persons to fill these offices. Something more than a chemist and bacteriologist is needed, *and your Committee would recommend that this Section urge pharmacal schools, which are so affiliated or located as to be able to do so, and the Young Men's Christian Association to establish a course in connection with a technical school or class, which will qualify students as sanitation officers and to confer upon them a certificate or diploma of public health.*

The field, in which your Committee has done such a little preliminary scratching of the top soil, is one well worthy of the most careful attention of this Section and of the general Association. Your Committee, therefore, recommends *that the work begun by it be carried forward,* and requests a careful and thorough consideration of its suggestions, so that those, into whose hands may be entrusted the real work of surveying and improving this important field, may be able to go about the performance of their task in a thoroughgoing manner. There are many contingencies to be met, many disasters to be avoided, and many pitfalls to be escaped in the proper performance of this task; but the results are so important to the future of pharmacy that the work should be put forward with diligence and dispatch.

Appended is a list of one hundred and fourteen institutions of various sorts, which are engaged in offering some variety of instruction in pharmacy. This list is not offered as being complete, because it is not possible to get information about every tutorshop and plugging school. Much assistance was given to your Committee in the compilation of this list by Prof. J. A. Koch, the Chairman of the Executive Committee of the American Conference of Pharmaceutical Faculties, and by the secretaries of a number of the state boards of pharmacy, and to these we desire to express our appreciation and gratitude. For obvious reasons we have omitted from this list the schools in Canada, Cuba, Porto Rico, and the Philippines, believing the field afforded by the continental portion of the United States, sufficiently extensive for the original purpose of the work of survey.

Respectfully submitted,

J. H. BEAL,
H. C. CHRISTENSEN,
HUGH CRAIG, Chairman.

ALABAMA:—Alabama Polytechnic Institute, Auburn. Birmingham Medical College and College of Pharmacy, Birmingham. University of Alabama, Department of Pharmacy, Birmingham.

ARKANSAS:—College of Physicians and Surgeons, Little Rock.

CALIFORNIA:—California College of Pharmacy, San Francisco. College of Physicians and Surgeons, Department of Pharmacy, San Francisco. University of Southern California, Department of Pharmacy, Los Angeles.

CONNECTICUT:—Y. M. C. A. School of Pharmacy, Hartford.

DISTRICT OF COLUMBIA:—Howard University, Department of Pharmacy, Washington. National College of Pharmacy, Washington.

FLORIDA:—Florida College of Pharmacy, Jacksonville.

GEORGIA:—Atlanta College of Pharmacy, Atlanta. Mercer University, Department of Pharmacy, Macon. Southern College of Pharmacy, Atlanta. University of Georgia, Department of Pharmacy, Athens.

ILLINOIS:—Central States College of Pharmacy (Loyola University), Chicago. Northwestern University, School of Pharmacy, Chicago. University of Illinois, School of Pharmacy, Chicago.

INDIANA:—Prof. Green's School of Pharmacy, Indianapolis. Indianapolis (Winona) College of Pharmacy, Indianapolis. Notre Dame University, Department of Pharmacy, Notre Dame. Purdue University, School of Pharmacy, Indianapolis. Tristate Normal School, Department of Pharmacy, Angola. Valparaiso University, School of Pharmacy, Valparaiso.

IOWA:—Babcock Institute of Pharmacy, Des Moines. Drake University, College of Pharmacy, Des Moines. Highland Park College of Pharmacy, Des Moines. Keokuk College of Pharmacy, Keokuk. University of Iowa, Department of Pharmacy, Iowa City. Western Pharma-Technic Institute, Council Bluffs.

KANSAS:—University of Kansas, Department of Pharmacy, Lawrence. Wuester School of Instruction in Pharmacy, Wichita.

KENTUCKY:—Louisville College of Pharmacy, Louisville.

LOUISIANA:—New Orleans College of Pharmacy (Loyola University), New Orleans. Tulane University, Medical School, New Orleans.

MAINE:—University of Maine, College of Pharmacy, Orono.

MARYLAND:—Artel's School of Pharmacy, Baltimore. Maryland College of Pharmacy (University of Maryland), Baltimore. Milton University, Baltimore.

MASSACHUSETTS:—Massachusetts College of Pharmacy, Boston. Dr. Patrick's School of Pharmacy, Boston.

MICHIGAN:—Detroit College of Medicine, Department of Pharmacy, Detroit. Detroit Technical Institute (Y. M. C. A.), Department of Pharmacy and Chemistry, Detroit. Ferris Institute, Department of Pharmacy, Big Rapids. University of Michigan, School of Pharmacy, Ann Arbor. Warner School of Pharmacy, Sandusky.

MINNESOTA:—Minnesota Institute of Pharmacy, Minneapolis. Smith (F. U.) School of Pharmacy, St. Paul. University of Minnesota, School of Pharmacy, Minneapolis.

MISSISSIPPI:—University of Mississippi, School of Pharmacy, University.

MISSOURI:—Barnes College of Pharmacy (National University of Art and Science), St. Louis. Bates College of Pharmacy, St. Louis. Bowen School of Pharmacy, Brunswick. Kansas City College of Pharmacy, Kansas City. St. Louis College of Pharmacy, St. Louis. Whitney School of Pharmacy, Kansas City.

MONTANA:—University of Montana, School of Pharmacy, Missoula.

NEBRASKA:—Creighton University, Department of Pharmacy, Omaha. Fremont Normal College, School of Pharmacy, Fremont. Omaha College of Pharmacy, Omaha. University of Nebraska, School of Pharmacy, Lincoln.

NEW JERSEY:—College of Jersey City, Department of Pharmacy, Jersey City. New Jersey College of Pharmacy, Newark.

NEW YORK:—Albany College of Pharmacy, Albany. Brooklyn College of Pharmacy, Brooklyn. College of Pharmacy of the City of New York, Columbia University, New York. Fordham University, School of Pharmacy, New York. University of Buffalo, College of Pharmacy, Buffalo.

NORTH CAROLINA:—Leonard Schools of Pharmacy and Medicine, Raleigh. University of North Carolina, Department of Pharmacy, Chapel Hill.

NORTH DAKOTA:—North Dakota Agricultural College, Department of Pharmacy, Fargo.

OHIO:—Cincinnati College of Pharmacy, Cincinnati. Cleveland College of Pharmacy, Cleveland. Ohio Northern University, Department of Pharmacy, Ada. Queen City College of Pharmacy, Cincinnati. Toledo University, School of Pharmacy, Toledo. Ohio State University, Department of Pharmacy, Columbus.

OKLAHOMA:—Epworth University, Department of Pharmacy, Oklahoma City. Northwestern State Normal School, Department of Pharmacy, Alva. University of Oklahoma, School of Pharmacy, Norman.

OREGON:—North Pacific College of Pharmacy, Portland. Oregon Agricultural College, Department of Pharmacy, Corvallis. Y. M. C. A. College of Pharmacy, Portland.

PENNSYLVANIA:—Medico- Chirurgical College, Department of Pharmacy, Philadelphia. Philadelphia College of Pharmacy, Philadelphia. Pittsburgh College of Pharmacy, Pittsburgh. Temple College of Pharmacy, Philadelphia.

RHODE ISLAND:—Rhode Island College of Pharmacy and Allied Sciences, Providence. Washington Park College of Pharmacy, Providence.

SOUTH CAROLINA:—Medical College of the State of South Carolina, Department of Pharmacy, Charleston.

SOUTH DAKOTA:—Dakota Normal College, Department of Pharmacy, Sioux Falls. South Dakota Agricultural College, Department of Pharmacy, Brookings.

TENNESSEE:—Chattanooga Medical College, Department of Pharmacy, Chattanooga. Meharry Pharmaceutical College, Nashville. University of the South, College of Pharmany, Sewanee. University of Tennessee, Department of Pharmacy, Knoxville. Vanderbilt University, Department of Pharmacy, Nashville.

TEXAS:—Baylor University, College of Pharmacy, Dallas. Department of Pharmacy, University of Texas, Galveston.

VIRGINIA:—Medical College of Virginia, School of Pharmacy, Richmond. University College of Medicine, Department of Pharmacy, Richmond. Virginia School of Pharmacy, Richmond.

WASHINGTON:—University of Washington, School of Pharmacy, Seattle. Washington Agricultural College, School of Pharmacy, Pullman.

WEST VIRGINIA:—West Virginia University, Department of Pharmacy, Morgantown.

WISCONSIN:—Marquette University, Department of Pharmacy, Milwaukee. University of Wisconsin, Department of Pharmacy, Madison. Wisconsin Medical College, Department of Pharmacy, Milwaukee.

Chairman Freericks: You have heard this most interesting report of the Committee, and I would like to ask now what is your pleasure with reference to it?

Dr. W. C. Anderson: I move, Mr. Chairman, that the report be received and referred to the Committee on Publication, with the recommendation of the Section that the Committee be continued or that this work be continued, at least, and the report of the Committee be approved. Seconded by Mr. Binz.

A Member: I notice that the report refers to giving degrees. I do not know just exactly how it was expressed, anyway, that we were not competent to fill the position that the degree placed the student in. While it is true, I think, that several of our members did not have the opportunity to go to college years and years ago, yet they have done good work for the Association, and for pharmacy. It is very nice to honor them by a degree, even though their teaching may not be high enough to warrant it. I believe it is a deserved honor, and I believe in honoring people while they are alive and not waiting until they are dead.

The motion of Dr. Anderson was called for, and carried by vote.

Chairman Freericks: We will now have the report of the Committee on Patents and Trade-marks. This report will be read by Mr. England.

Before the reading of the report, Mr. England stated that the Chairman of the Committee is Dr. F. E. Stewart, who, unfortunately, is not able to be present, and had asked him to read the report.

REPORT OF THE COMMITTEE ON PATENTS AND TRADE-MARKS.

Owing to the shortage in supplies of imported chemicals, caused by war conditions in Europe, and the hinderance to plans for manufacturing them in the United States because of patent grants made to foreign inventors, who are not

manufacturing them in this country, the question of patents and trademarks has occupied considerable prominence during the past year.

The Chairman of your Committee, as your representative and as a representative of similar committees of the Pennsylvania State Pharmaceutical Association, and of the Philadelphia Merchants' and Manufacturers' Association, attended the hearing at Washington before the House Committee on Patents in relation to the Paige Bill, in company with Mr. Samuel C. Henry, President of the National Association of Retail Druggists, and Mr. Jacob H. Rehfuss, Chairman of the Legislative Committee of said association. The Paige Bill and the hearing[1] referred to are of so much importance to pharmacy that your Committee is presenting both documents as part of its report.

You will note that your Chairman filed a brief with the House Committee on Patents, which appears in the official report of the hearing. This brief consists of Preambles and Resolutions constituting his report as Chairman of the Committee on Patent Law Revision of the Merchants' and Manufacturers' Association, and includes a proposed revision of certain sections of the copyright, patent and trademark laws, which bear upon the chemical industries and the materia medica supply business.

The proposed revision was undertaken by your Chairman in response to the request of Dr. S. Solis-Cohen, Chairman of the Committee on Scope of the Committee having charge of the revision of the United States Pharmacopœia.

The salient features of the proposed revision consist in certain additions to and modifications of the laws, as follows:

1—Modification of the patent law to prevent aliens from obtaining patents for their invention in the United States except in case they manufacture them in this country, within a stated period of years dating from the issue of United States patents.

2—Adoption of a provision in the U. S. Patent Law, similar to a provision contained in the German Patent Law, and also contained in the Patent Laws of most foreign countries, which limits patents related to new chemical and food products to processes and apparatus for manufacture, and requiring inventors of alleged improvements to prove them to be such before placing the same on the market in competition with the inventions of original patentees.

3—Addition of a section to the copyright, patent and trademark laws, respectively, definitely stating the fact that names of new articles of commerce are neither copyrightable or patentable.

4—Addition of a section to the patent and trademark laws requiring applicants for patents or trademark registration, to give the name of the article for which patent is asked or trademark registration requested, said name to appear afterward as the principal title on all labels and advertisements of said article, when placed on the market.

The following exception to our position in relation to so-called trade names has been filed with your Committee:

"When a patent was granted by the United States to the inventor of acetphenetidin this gave an absolute monopoly to the manufacture and sale of said article for a limited time. When that time expired everybody secured the right to manufacture and sell said article, and a monopoly in the manufacture and sale ceased altogether. Now you would hold it to be wrong that the patentee for said article adopted the coined name phenacetin and made acetphenetidin generally known by such coined name, so that those who buy and use the article are accustomed to call for it as phenacetine. There was absolutely nothing which prevented the professions and the public from becoming accustomed to call for said article by the name acetphenetidin, and the original patentee or those holding his rights could in no manner complain, if the patented article was generally called for by such name and then upon expiration of the patent everybody being accustomed to call for it by such true descriptive name, the advantage of the original patentee would entirely cease with the expiration of the patent.

"Now because the professions and the public are indifferent to the use of a correct de-

[1]This is too lengthy for printing in the Journal. Those who desire a copy can secure one by addressing the Committee on Patents, House of Representatives. The date of the Bulletin is January 28, 1915.

scriptive name or because they are too lazy to use it you complain and condemn the patentee for having acquainted the public with a name coined by him, which results in securing to the original introducer the acetphenetidin manufactured by the original patentee. It is right at this point where our views differ. I am inclined to believe that you would object quite as much if the patentee had advertised his article as Jones' acetphentidin, and had been able to have the public always call for Jones' acetphenetidin instead of simply acetphenetidin. Of course, you will agree that no one in justice could object if through extensive advertising the patentee had induced the public and the professions to invariably designate his article as 'Jones' acetphenetidin,' and thus secure advantages in the continued demand for the article after the expiration of the patent, but because he has decided upon a coined name to mean exactly the same thing as Jones' acephenetidin, you believe that his conduct is much to be condemned.

"After all in this connection it is merely a question of degree. It is understood, that the public will far more readily take to a coined name, but fundamentally there is no difference, and if the patentee might succeed in having the name of the article invariably used in connection with *his own* name, then as stated the result would be the same and there ought not to be an objection on any ground."

No one disputes that the manufacturer of a new product, who places it on the market, and succeeds in creating a demand for it, by honest advertising, has a right to all of the business he can obtain in this manner, provided, of course, the product itself can safely be used by the public, without injury to health or morals. No one disputes that the use of a distinctive mark, word, or trade name to designate and distinguish his brand from all other brands of the same article, and the creating of a demand by advertising the article under a brand name, are both legitimate and may be advisable from a commercial standpoint.

It is, therefore, important that the trade name should be properly used, otherwise, in case of a lawsuit, the manufacturer may find himself without the protection of the courts. The method of using the trade name described by our objector, is not the proper manner, as the following facts will clearly show:

It is evident that the object in view on the part of those manufacturers of materia medica products who patent their alleged inventions under chemical names, and market them under coined names, is to obtain monopolistic control of the products so marked, after the patents expire, and thus defeat the object of the patent law, which is to grant inventors the right to prevent others copying their inventions for limited times, after which their manufacture is required to be open to competition on equal terms with the patentee.

The coined name, when used in this manner, becomes, by such use, descriptive of the article itself, and it is an axiom of law that a descriptive name cannot be a trademark. Used in this manner the name ceases to be a trademark, even though it may have been registered as such and becomes a synonym and as such can be used by any manufacturer in labeling the same product. This is well illustrated in the case of saccharin, the chemical name of which is benzoylsulphonic imide. By persistent advertising the word saccharin was forced into the language as a noun and became known to the public as an appellative. When the patent expired benzoylsulphonic imide became public property, together with the name saccharin. Now it is listed in Merck's Index as "Saccharin Merck," and under that name appears its chemical name benzoylsulphonic imide, and also all of the so-called trade names, such as "Garantose," "Glusidum," etc. It is manifest that when Merck & Co. received an order for benzoylsulphonic imide under any one of these so-called trade names, they would feel free to supply it under the name Saccharin Merck.

Is this action of Merck & Co. in harmony with the object of the patent law? Let us analyze the question.

Benzoylsulphonic imide is a definite chemical substance which, if properly made, corresponds to the same tests for identity and purity no matter which manufacturer produces it. It first appeared on the market as "Saccharin." The name "Saccharin" was claimed by the commercial introducer as a trademark or trade name. Its sale was inhibited by patent protection. These restrictions have been removed by the expiration of patent. In accordance with the decision

of the Supreme Court of the United States in the Singer Sewing Machine Case,* the product is now open for competition under the name saccharin, as well as under the name benzoylsulphonic imide. No one will question the right of Merck & Co. to treat the names "benzoylsulphonic imide" and "saccharin" as synonyms. The question, therefore, resolves itself into this, namely, is it not a proper proceeding on the part of Merck & Co. to treat all other trade names as synonyms also? The product is open for competition. No one has the right to control the name saccharin. Why should any one have the right to control any other name by which the product is known? Why should Merck & Co. place themselves in a disadvantageous position commercially by recognizing proprietary claims on the part of competing houses? When the patent inhibiting the sale of the product expired Merck & Co. were forced to relinquish all proprietary claims to the name "Saccharin." Why, then, should they recognize proprietary claims to other "trade names" for the product on the part of their competitors?

The question arises in each case, is the name claimed by the manufacturer as a trademark, a trademark in fact, or merely another name for the same thing, and therefore, a synonym? This question can usually be answered without difficulty by asking another question, namely, is the name claimed as a trademark *used* by the manufacturer for the purpose of distiguishing his *brand* of the article from other brands of the same article, or is it used to give the medical profession or the public the impression that the article sold under the name is in its physiological properties and therapeutic effects different from other articles used for the same purposes? If it is a different article it is perfectly proper to give it a different name, in which case the name given it becomes public property, and all who deal in the article (and all have a right to deal in it unless restrained by patent) have a right to designate it by the name by which it is recognizable.

Names cannot be copyrighted or patented, or owned by anybody, no matter whether they are coined names or not. Every word in the language was coined by somebody and if the act of invention creates a right to the ownership of a word or a name, the entire common language in fact now belongs by right to the inventors and every time we speak or write a word or use a name, we are guilty of infringing the "vested rights" of somebody.

Armed by these facts, let us return to the objections urged by the gentleman who takes exception to our position regarding "trade names."

Our objector uses as a foundation for his argument the assumption that "Jones," having a right to the exclusive use of his own name, Jones, has also the right to designate the acetphenetidin made by him as Jones' acetphenetidin, and, therefore, the right to substitute for his own name (Jones) another name as a designating or specifying word-mark, i. e., phenacetine. This argument seems plausible, but it is unsound. Singer probably had the same idea in mind when he

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*DECISION OF SUPREME COURT OF THE U. S. IN THE SINGER SEWING MACHINE CASE.—The result then of the American, the English and the French doctrine universally upheld is this, that where, during the life of a monopoly created by a patent a name, whether it be arbitrary or be that of the inventor, has become, by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created. When another avails himself of this public dedication to make the machine and use the generic designation, he can do so in all forms, with the fullest liberty, by affixing such name to the machines, by referring to it in advertisements and by other means, subject, however, to the condition that the name must be so used, as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indication that the thing manufactured is the work of the one making it, as will unmistakably inform the public of the fact."

It has been decided by the courts again and again that

"When an article is made that was theretofore unknown, it must be christened with a name, by which it can be recognized and dealt in, and the name thus given it, becomes public property, and all who deal in the article have a right to designate it by the name by which it is recognizable." (Lelanche Battery Co., 23 Fed. Report, 227.)

called his machine the "Singer Sewing Machine." The function of a trademark is to point out the manufacturer, or, in other words, to point out the *brand.* When a manufacturer permits his own name to become part of the name of an article it is no longer capable of pointing out brands of such article. It has become by the act of the manufacturer part of the common language and, therefore, public property.

We have many familiar examples of a person's name becoming a mere indication of a certain article or class of goods. Wellington, Brougham, Stanhope, Manton and Dover, are personal names that have given us the "Wellington boots" the "Brougham" or the "Stanhope" carriage, the "Blucher" boots, the "Manton" fowling piece, and "Dover's" powder.

The fact that a man may lose the exclusive use of his own name in connection with the manufacture and sale of an article of commerce has been decided by the courts so many times that no one versed in law would attempt to contest it. The Singer Sewing Machine case is by no means the only instance, as reference to the law libraries will show.

If our position on this subject is sound it logically follows that the names "phenacetine," "salol," "aspirin," "lanolin," and hundreds of other names appearing in medical literature and claimed as trademarks by the manufacturers, are not trademarks in fact, but appellatives and therefore public property. The Supreme Court in its Singer Sewing Machine case decision* points out the fact that when a name has become by the consent of the manufacturer, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monoply created by the patent. The manufacturers of these products have never protested against the use of their so-called trade names by the medical profession and the public as appellatives. On the contrary, they have not left a stone unturned to force their names into scientific literature as appellatives for the purpose of converting the educational machinery of medicine and pharmacy,—colleges, text books, medical and pharmaceutical periodicals—into a great advertising bureau for commercial exploitation and free advertising. Certainly by their consent these names have become public property if the decision of the United States Supreme Court referred to means anything.

What we want to protect is not monopoly in the manufacture and sale of *products.* What we want to protect is property in *brands.* We believe that when a new chemical product is invented or discovered, the real invention or discovery is in the *way of making it,* rather than in the product itself. The science of chemistry has determined before hand that the union of certain elements in certain proportions will result in the production of certain substance, the exact composition of which every chemist has foreknowledge. But the orginal research necessary to work out the process partakes of the character of an invention, and the exclusive right to the process should be granted to the inventor for a definite period of years. And we believe that the manufacturer of the original brand should be protected in the use of a word-mark to distinguish his brand; also that each brand as it appears on the market should be distinguished in a similar manner.

But the product itself, and its currently used name, or names, should never be granted to the exclusive use of anybody. As stated by Browne in his work on Trademarks, such a grant "would be giving a copyright of the most odious kind, without reference to the utility of the application or the length of the title, and one that would be perpetual. Neither the trademark law nor the copyright law, nor the patent law, affords any such right, or under the pretense of the same, allows anyone to throttle trade under the alleged sanction of the law."

The word-marks "Eagle," "Star," and other brand marks, as applied to "Eagle

*See footnote.

Brand Condensed Milk," "Star Brand Braid," etc., are not open to the objection of being the names of products. They are clearly the names of brands. In the same manner there might be several brands of acetphenetidin, as the "Phenacetine brand of Acetphenetidin," etc., etc. But the use of trade names in this legitimate fashion is not what the manufacturers want. What they want is to force their coined names into the common language as nouns, and at the same time hold on to them as trademarks. In other words, they want to "eat their cake and have it, too."

In the light of the above statement it is evident that the attempt of "proprietary" manufacturers to create and maintain monopolies in unpatented articles of commerce by claiming as private property the currently used names of such products is an invasion of public rights. Because the public is ignorant, indifferent or unmindful of its rights does not mitigate the offense in the least.

F. E. STEWART, Chairman,
S. L. HILTON,
W. BODEMANN,
J. W. ENGLAND.

In this connection, the following separate statement by J. W. England is attached:

The coined name of a chemical compound becomes, by common usage, its descriptive name or title, and the granting of product-patents to inventors, as in this country, forever estops all other inventors from *marketing* the same compound, no matter how new and original their process of manufacture may be. The second inventor can patent his process of manufacture, but he cannot patent the *product*, because it has already been product-patented by the first inventor. The privilege of product-patenting is not granted in Germany and other countries; only the process of manufacture.

Thus, in our country, invention is discouraged, instead of being encouraged, and the American people are prevented from obtaining the full fruits of the inventive genius of their own inventors.

Unquestionably, when a product-patent for a chemical compound prevents the marketing of the same chemical compound made by an entirely different process of manufacture than the one patented by the first inventor, *such product should have the right of sale in this country;* and to ensure this, Congress should give the Commissioner of Patents the right to suspend the life of a product patent whenever such conditions exist. Such action would in no wise discourage invention; it would encourage it, and this is, or rather should be, the chief function of all patent legislation.

The following separate statement by Frank H. Freericks, a member of the Commitee, is attached, also:

With his well appreciated kindness and consideration Chairman Stewart does not refer by name to the objector mentioned in his report. However the circumstances do not permit that I shirk the responsibility which every member of a Committee should feel.

I do not question at all the citations of Chairman Stewart made to sustain his position, but I would point out that every case which may be cited for that purpose must be regarded in the light of its particular facts. Freely do I admit, that I have not devoted the thought, time and study to this subject as has our Chairman, but nevertheless I take the liberty to point out that I am not yet willing to agree to his conclusions of what the law is.

That my position in that respect cannot be altogether wrong is best evidenced by the fact that our Chairman deems it necessary by statutory amendment to make the law what he now claims it to be. If the law now is what he claims it to be, then there would be no need for amendment. The law is common sense or ought to be. It is not in keeping with my sense of justice and with my common sense, if I have any, to make it impossible to exploit proper medicines of a proprietary character in the expectation of special profit, when such is regarded to be in keeping with the highest principles in other commercial lines. I believe that a man may serve the public quite well by introducing to them a proprietary medicine of

special merit as he may serve by acquainting them with a proprietary food of special quality. In either case I believe him entitled if he will run the risk of great loss for the purpose of introducing his article, to the exclusive profits which may result from such special endeavor.

However it is primarily my contention that we should not be concerned so much with deciding upon specific changes in the present law, until after there has been a fair understanding and agreement of what such changes in justice ought to be. I make the point that this phase has not had the general consideration which it deserves, and incline to believe that a large proportion of the American pharmacists and of the American public will be unwilling to approve some of the amendments proposed if they have a clear understanding of what they mean and lead to. In my humble judgment this Committee should seek to bring about a better understanding of the facts, and when an understanding of the facts has been generally arrived at it will be time to turn to legislative remedy for evils which may be agreed to exist.

H. R. 19187.

In the House of Representatives, October 8, 1914, Mr. Paige of Massachusetts introduced the following bill; which was referred to the Committee on Patents and ordered to be printed.

A BILL—To amend sections forty-eight hundred and eighty-six and forty-eight hundred and eighty-seven of the Revised Statutes, relating to patents.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section forty-eight hundred and eighty-six of the Revised Statutes, as amended by Act of Congress approved March third, eighteen hundred and ninety-seven, be, and the same is hereby, amended so as to read as follows:

"SEC. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof, not known or used by others in this country before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country before his invention or discovery thereof or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law and other due proceedings had obtain a patent therefor: *Provided,* That no patent shall be granted on any application filed subsequent to the passage of this Act upon any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo, except in so far as the same relates to a definite process for the preparation of said drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo."

SEC. 2. That section forty-eight hundred and eighty-seven of the Revised Statutes, as amended by Act of Congress approved March third, eighteen hundred and ninety-seven, and as further amended by Act of Congress approved March third, nineteen hundred and three, be, and the same is hereby, amended so as to read as follows:

"SEC. 4887. No person otherwise entitled thereto shall be debarred from receiving a patent for his invention or discovery, nor shall any patent be declard invalid, by reason of its having been first patented or caused to be patented by the inventor or his legal representatives or assigns in a foreign country, unless the application for said foreign patent was filed more than twelve months in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and four months in cases of designs, prior to the filing of the application in this country, in which case no patent shall be granted in this country.

"An application for patent for an invention or discovery or for a design, filed in this country by any person who has previously regularly filed an application for a patent for the same invention, discovery, or design in a foreign country, which, by treaty, convention, or law, affords similar privileges to citizens of the United States, shall have the same force and effect as the same application would have if filed in this country on the date on which the application for patent for the same invention, discovery, or design was first filed in such foreign country: *Provided,* That the application in this country is filed within twelve months in cases within the provisions of section forty-eight hundred and eighty-six of the Revised Statutes, and within four months in cases of designs, from the earliest date on which any such foreign application was filed. But no patent shall be granted on an application for patent for an invention or discovery or a design which had been patented or described in a printed publication in this or any foreign country more than two years before the date of the actual filing of the application in this country, or which had been in public use or on sale in this country, for more than two years prior to such filing: *Provided, however,* That in case any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo, on which a patent for a definite process for the preparation thereof has been granted on any application filed subsequent to the passage of this Act, is not manufactured in the United States by or under authority of the patentee, within

two years of the granting of said patent, and after the commencement of said manufacture the same is not continuously carried on in the United States in such a manner that any persons desiring to use the article may obtain it from a manufacturing establishment in the United States, then said patentee shall have no rights under the patent laws of the United States as against any citizen of the United States who may import such drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol, and indigo into the United States or who may produce or manufacture the same in the United States or who may handle for sale or use such article so imported or manufactured."

Chairman Freericks: You have heard the report of the Committee on the Revision of the Trade-mark and Patent Laws. What is your pleasure? First of all it will be proper to make a motion of some sort with reference to the report as it is now before you, and it will then be open for discussion.

Dr. Anderson: I have not a patent or trade-mark on these motions, Mr. Chairman, but I think it is necessary to have a motion in reference to it. Therefore, I move that the report be referred to the Committee on Publication. Seconded by Mr. Phillips.

Chairman Freericks: The Chair will ask his associate to act for a short time. Miss Zada M. Cooper then presided.

ABSTRACT OF DISCUSSION

G. H. P. Lichthardt: Two or three years ago I became quite interested in the subject of trademarks and patents as regards the granting of trademarks and patents on medicinal products; and I went quite thoroughly into the matter and corresponded with Chairman Stewart and he was quite kind enough to send me some rather lengthy communications on the subject. And after I had spent a good deal of time and effort I knew very little about the subject, in fact, very little more than when I started, that is, from the practical standpoint, and I feel quite as helpless today. I would like to get, in condensed form, the gist of the actual situation under our present laws, and what might be accomplished, what it is aimed to accomplish, or what is aimed to be accomplished in correcting those laws where they need correction.

I hope the discussion will bring out something really helpful and something that the ordinary layman can understand on the subject. This question of trademarks not only affects the American pharmacist, but the American Medical Society is working on it and has been for a long time. I think as long ago as 1912 the then President of the United States, William Howard Taft, spoke to the Section on Applied Chemistry and Patent Laws.

It seems to me, that the trademark, is simply a notice to the world that you have adopted thus and so. I am not very familiar with the national trademark laws, but I think the state laws are somewhat similar. It is not the name that you trademark, but it is the way it is written. I have several trademarks myself, and it is the design that you trademark and not the name. Is not that your understanding of it, Mr. Freericks?

Mr. Freericks: That is correct with reference to trademark, yes. I do not want to take up much time to refer at length to the subject. I feel rather out of place in speaking on it at all since Chairman Stewart is not here. It would be very much better if he were here, for then the discussion would not be a one-sided affair. I think Mr. England is much in accord with the views of Dr. Stewart and possibly he will do all the calling down that can be done. I am heartily in accord with the proposition that our patent laws should be amended along the line as just pointed out by the previous speaker, but my point first of all is that we have been devoting years and years discussing patent and trademark cases and you can ask wherever you will and nobody knows anything about it. They are all ready and willing to have the patent and trademark laws changed. But it is not the proper way of getting at the thing; it is a serious, very serious matter. My point is that we should know more about the facts of the trademark and patent laws, and we should not simply start off by leaving it to the Committee and taking it for granted that that Committee is properly going to represent this body. It is not fair to the Committee. It is not fair to the pharmacists of the country. It is not fair to the public, and it is not fair to ourselves.

And now with respect to the point raised about the trademarks: It is quite right. A trademark is truly a mark of some sort, some individual design that can be claimed to distinguish one man's goods from another man's goods.

But do you know that it is the tendency of your committee and others to take a wrong position,—now, I am going to name a substance,—not because I favor it particularly but it just come to my mind.

Do you believe it best, do you believe it fair, that after millions of dollars possibly have been spent to place a proprietary before the public of this country that you and everyone else should make this preparation?

Now, that is exactly what is proposed and I think it is unfair, and there is where we are making the mistake.

It affects every retail pharmacist in this country.

Many of you have preparations that you take pride in and that you have a right to take pride in. Do you think it unfair or not, that your neighbors and others should go out and make that preparation? If it had not been for you the public would not have had that merited product. And when I do that, I have taken the risk; it has been my money that has made that material known to the public, and it is nothing short of robbery to take that away from me. It is this view that I am trying to bring home to you. And if you pharmacists are not careful, you are going to have an amendment in the trademark laws of this country that will make that possible.

Mr. Binz: I heartily concur in the general statement because I have had some experience in trademark goods. I do not want you to infer from that, that I want to advertise my business at all, but it just happens to be an instance that will bring this home.

I happen to get out an Oil of Eucalyptus in the southern part of the state, an Oil of Eucalyptus which is better than the ordinary run of Eucalyptus. I have spent about five years detailing this oil among the physicians. I used no trademark. I have been sorry for years past that I did not do so.

You can go from one druggist to another and you can pick up perhaps twenty grades of eucalyptus oils and no two of them are distilled from the same variety. That is one reason why I have fallen down with the higher grade of eucalyptus oil. I did not have protection. I think that any man who makes a specialty of an article should be protected with a trademark, for the druggist never will protect him.

Mr. G. H. P. Lichthardt: I feel we are getting at least some definite expression on one point: That is, regarding copyrighting specific names, proprietary names. I agree with our Chairman, when a man spends a great deal of money in advertising a product that he ought to be protected; that when this preparation is prescribed or ordered, it should be supplied every time; but I do not believe that because this certain named compound has been exploited,—that we should prevent anyone else from putting up a similar compound and marking it under some other name. As regards Mr. Binz: He could market his product as "Oil of Eucalyptus.—Binz," and the druggist is bound to dispense the product when it is so prescribed, otherwise he is substituting. But he should not be protected in giving him a monopoly, preventing others from putting up oil of eucalyptus, or an oil which might be superior to his oil of eucalyptus, and prevent you from getting such a product. I do not just know how those points are covered by our present patent and trademark laws.

I would like to ask if there ever has been any effort made to run down the status of the trademark, that is, in the legal way, having a committee appointed to really find out what it is and where it is and where we are?

Mr. Freericks: The Chairman of this Committee, Dr. Stewart, has been at work on that for years, and for the information of all, I would say that of the many men connected with pharmacy there has been no one who has given that matter more study than Dr. Stewart has given it.

As is so often the case, and that is where we make our mistake, we appoint a committee, and the committee seeks to do its work, but the Chairman after all is the one who must do the greater part of it.

I merely call it to your attention and I apologize for expressing a personal opinion now; but the trouble is that the Committee has not been given sufficient authority; the difficulty is

that the committee on trademark and patent law revision has not been given the proper scope; that is, the membership has not given that committee, and particularly the Chairman, the attention that he has a right to ask for and he ought to have.

And if upon the report that the Chairman of the Committee on Trademark and Patent Law Revision makes annually, there would be the right discussion and expression of opinion, and if the membership generally would study the subject, in two years the pharmacists of this country would thoroughly understand the trademark and patent laws and the changes that ought to be made.

But each of you, I am sure, who have been connected with the Committee, have found yourselves doing faithful work and piling up much in the way of statistics and valuable information, and when you make up your report everybody is really pleased and they say, "Yes, we will receive it and approve it," but that does not help your committee.

It is agitation, a difference of opinion, that will bring that out, and I am hopeful that that will be done in the next year, and then, I am sure, we will understand the patent laws and trademark laws as they ought to be understood.

General Secretary Day: I have been very much interested in this subject, although, in common with some of the others present, I have not a very deep knowledge of it; but there is another phase to the proposition presented by the Chairman so ably.

With regard to a proprietary, ought there not be a limitation as to time for which a trademark would hold good? Isn't it a fact that trademarks now are practically perpetual?

After a time the trademarked word may become a common word of the language, and then have we not a right to provide for the use of similar preparations under that established name? There is a question whether we ought not be permitted to put on the market our own brands of certain proprietaries, after the preparation has reached a degree of common usage which brings the word into the language as a common word.

Mr. Lichthardt: Now, that is something definite: If a trademark confers perpetual rights under our trademark laws then the law in that respect should be amended, as Professor Day points out, so that a phrase or word that becomes practically part of the English language,—common usage—does not confer perpetual proprietary rights in that article. Now, that seems to be a perfectly clear proposition. While I have the floor I am going to dwell on another phase of trademark and patent laws, and I think the present time is the psychological moment to spring trademark changes and patent changes on the United States Congress because of the European war. I have particularly in mind the situation as regards chemicals, particularly German chemicals patented in the United States. Take for example, Salvarsan; Salvarsan is patented in this country also trademarked and copyrighted; I know it is fully protected.

While the originators of Salvarsan are protected in every possible way by the United States, the United States is not protected in any sense. We can not manufacture Salvarsan in this country. And our trademark laws evidently do not provide that the product should be manufactured in this country after a reasonable time; a reasonable time after the granting of the patent as is the case in some other countries, namely, England and France, I understand.

Now, they are making Salvarsan in Japan; making it in two or three different cities in Japan, and they are deriving the benefit of Salvarsan there, as they are also in Great Britain, where they are making Salvarsan and bringing it out under a different name, but at the same time, they are making it.

Here in this country we are absolutely helpless; even though we could make it, we are not permitted to, and moreover we are not permitted to import Salvarsan, which is made in Japan or Great Britain. I think there is something radically wrong.

We not only grant the trademark or patent privileges, but we also have to pay an excessive price.

There seems to be something very necessary there in the amending of our patent law. Of course, I do not pretend to be familiar with the subject, but it would seem to me that a very necessary amendment to our patent law is, that where a foreign product is protected by a United States patent, that product should be made in this country, so that when a condition occurs as at present in Europe, we can make the product and give the people who need that

product, that particular chemical, the opportunity of using it without being charged an excessive price for it.

Mr. England: I have listened to the discussion which took place from the different angles, and I am more than sorry that Dr. Stewart is not present to give us the benefit of his very wide knowledge on the subject. He is a walking encyclopedia on the subject of trademark and patent laws, and I could not begin to express his opinions here. It requires a man on the ground who has the technical education today to give a correct opinion.

The ground has been so fully covered by Mr. Day and Mr. Lichthardt that I do not think it is necessary to refer to the phase of the discussion covered.

Just one thought: And I think Mr. Lichthardt has struck the crux of the whole situation in that respect. He cited Salvarsan as a common example, as an illustration of patent misuse.

The *process* for making Salvarsan is patented in this country. Salvarsan as a *product* is patented in this country. The *title* is copyrighted in this country or given the protection of a trademark.

If some country discovered a new method of making it they couldn't patent it or sell the product, and it seems to me that is one feature of the patent laws which needs correction; and the one feature which particularly needs correction is the amendment of the *patent product law*.

This country stands face to face with a great dearth of coal tar products. Many of these are patented in this country, and, as Mr. Lichthardt shows, they can be made in Japan and they can be made in England and France, and they can be imported into this country, but not sold, because the products are patented.

If we are going to develop restrictions in this manner around industry in this country it will result in its being stifled. I believe we shall have to amend these laws so as to give to our manufacturers the same right that Germany gives its manufacturers. Germany has no product patent law. England has no product patent law.

In order to stimulate our chemical industries, we will have to amend our laws; it will be necessary to adopt some law of protection.

I believe in protection, protecting the men in the industries. I do not believe we will ever have development of the chemical interests of this country until they have full protection.

Note the difference between the wages that the German laborer or employee receives and the corresponding difference between the American laborer and employee.

In Germany chemists command very small salaries, but in this country relatively high salaries are paid and they are scarce at that.

The raw materials cost about the same. Much of the raw material Germany uses in the making of chemical compounds comes from this country.

Mr. Binz: I think, as Mr. England does, and Mr. Lichthardt, that the amendment should be predicated in the patent law, like the copyright and trademark law. I think the copyright and trademark law is just to the manufacturer, but I do not think the German chemist should be allowed to patent his product or his way of manufacturing and prevent it from getting into the United States, or prevent it from being manufactured.

Mr. Freericks: Not to take up any further time on that point, but to make one point clear, I would say that there is a distinction between the registration of a label and a trademark. We have the two provisions, and we may have the registration of a label or the printed name appearing on a label, and we may have a trademark; but a trademark is altogether different from the registration of a name. I merely speak of that so there will be no misunderstanding.

The vote was called for and carried.

Mr. Freericks then resumed the Chair.

Chairman Freericks: The next paper will be the report of the Committee on Drug Reform. This paper or report is presented by Chairman L. E. Sayre of that Committee.

Chairman Freericks then read the report.

REPORT OF THE COMMITTEE ON DRUG REFORM

For the fifth time, your Committee on Drug Reform offers to the Association an annual report. From the first year of its appointment by President Rusby, the Committee has groped its way hesitatingly, as in darkness, not having a clear definition as to its function. Former reports will show that the Committee has outlined its own course and prescribed the limits of its works.

The Committee has endeavored to keep in touch and, as far as it was able, work with those who were promoting better and more uniform legislation in Food and Drug Control; with those who were endeavoring to promote a better and higher education for pharmacists, and to offer its help in promoting the cause of drug culture in the United States. The term "Drug Reform," to make it comprehensive, might mean anything that would tend to improve present conditions in the whole realm of pharmacy, but to act on such a broad program at one time would simply lead to ridiculous superficiality and, therefore, your Committee has concentrated the little work it has done in a very few directions only.

It may be said in passing that a letter from one of the members of the Committee, Albert Schneider, in reply to a request for his contribution to this report, says: "I am now engaged in preparing a bulletin on the *Cultivation of Belladonna in California* which will be published by the University. This bulletin will be the theme of my report on the cultivation of medicinal plants." This phase of the report, your Chairman suggested to Professor Schneider to be his contribution. Professor Schneider has certainly had every experience in this work, contributing time and money to the same.

Your Chairman endeavored to secure through legislation in Kansas a new Pharmacy Law, which was considered by the legislative committee a model law, improving the present law now in force. The legislator, who was a pharmacist and who had in charge this model law, insisted that there should be a provision in it that the registered pharmacist and the assistant pharmacist should have pursued to successful conclusion a course of four years' high school study, or its equivalent. The Chairman advised him that he thought this would be opposed. The law also provided that every dispensing practitioner of medicine should keep a copy of his prescriptions in his office for at least two years. The doctors of medicine of the Committee on Hygiene and Public Health gave their support, believing that it would be objected to only by lazy physicians. The Section IX also provided that the regulation under which the State Board of Pharmacy is now operating, permitting it to issue a merchants' license to others than registered pharmacists when there is no pharmacist within four miles of such a merchant's place, should give authority to sell the usual domestic remedies and medicines in unbroken packages, not including any article included in Schedules A and B of the Pharmacy Act. Other sections of the bill refer to the sale of narcotic drugs and were framed to meet the requirements of the Harrison Law. Mr. C. A. Mosher, who was the champion of the bill, a pharmacist, writes of its fate in substance, as follows:

Referring to the vigorous attack of the legislature he says:

"The first gun fired against the bill threw a shot from miles beyond our ken into the high school requirement. One ally thought that high school graduates should be reserved to fill up the ranks of school marms as fast as decimated by stenography and marriage. Another thought that high school graduates 'ought to be taught to plow.' And all were agreed that my maids and lads did not need more than 'Readin', Ritin', or 'Rithmetic' to permit them to thrust their hands into the intricate mechanism of health and life.

"The various death-dealing missiles were thrown thick and fast—the legislators called them amendments; the first of these read as follows: 'All persons, firms, or corporations are hereby prohibited from selling or keeping for sale in any drug store in this State, any goods, wares, or merchandise other than medicines as defined in this act.' This shot almost 'killed the bill,' but a final blow was struck by one who has stood as a legal protector of the

drug peddler, and the legislative oppressor of physicians and pharmacists of Kansas. This final blow was presented in the form of another amendment reading as follows: 'Providing that nothing herein contained shall be construed as requiring a pharmacist, registered under existing law, *or having practiced pharmacy as proprietor in Kansas for ten years,* to take an examination.' This motion, having passed, was followed by a final one to strike out the enacting clause—which put the almost lifeless thing out of its misery."

In connection with the anti-narcotic law, your Committee has had considerable correspondence and has endeavored to give instruction in regard to it to those who were not clear in their mind as to its varied application. Your Chairman has met with various local medical organizations, to which pharmacists have been invited, where the law has been under discussion. So much active interest has been evinced in this restriction of sale and distribution of habit-forming drugs that we are now facing a mass of legislation which calls for an effort to produce uniformity—one that will promote the effective coöperation and harmonious regulation of commerce in the handling of narcotic drugs throughout the United States. So much has been said in the Journal of this Association and current pharmaceutical magazines in regard to bringing all State laws in conformity with the Harrison Act, that your Committee believes it unnecessary to do more than call attention to the draft of what is known as the N. A. R. D. State Antinarcotic Law prepared by a committee consisting of Dr. J. H. Beal, Frank H. Freericks and Hugh Craig; this draft is intended "to serve as a body of well considered provisions from which selections may be made for use in states where existing laws need to be revised." In this connection, attention should be called to articles published in the Journal of this Association (June, 1915, Pp. 702 and 707), by M. I. Wilbert and Charles Wesley Dunn. Mr. M. I. Wilbert says, in his contribution, in regard to "greater uniformity," it should be borne in mind that the Federal Antinarcotic Law is not restricted to Federal territories and to inter-state commerce, but is uniformly applicable and in force in all parts of the United States, therefore it is manifestly unnecessary to re-enact in the several states any part or all of the Federal Antinarcotic Law. Such enactment would only tend to duplicate the penalties that might be imposed.

Mention should be made also in this connection, of the activity of special committees of the Chamber of Commerce of the United States, a report from which has recently been issued on "A Proposed Uniform State Narcotic Law." Mr. B. L. Murray, of Merck & Company, is Chairman of the Sub-Committee on Drug Control. Your Committee has been in correspondence with him and desires to recommend that your future Committee shall, in every way consistent with its functions, coöperate with him and other agencies which may tend to bring about the end above mentioned.

Confirmatory to the Sherley law, a far-reaching legislative act (Senate Bill No. 229) was passed by the recent Kansas legislature which makes it a criminal offence to publish or circulate in the state, whether by newspaper, by label or otherwise, any statement regarding merchandise offered to the public, which is in fact untrue, deceptive or misleading. It will be interesting, to say the least, to see how far-reaching this new law will be when applied by the proper authorities. It suggests to our minds the idea which Prof. James H. Beal had in his address before the North Carolina Pharmaceutical Association under the caption of "A Fury for Legislation." He says in substance: "We have drifted from 'the largest field for individual initiative and the most untrammeled opportunity' into that of making 'each citizen a ward of the state and to guard and direct his every act and ambition as if he were an irresponsible and heedless infant.'" On the other hand we may say in reply to this idea that present restrictive legislation is exposing the abuses of the unscrupulous, who have taken advantage of the freedom vouchsafed us by our forefathers, and the present paternal regulation, which we shall have to bear with patience, is a burden thrust upon us by our common humanity.

It is perhaps unnecessary to say, in regard to the Stevens' Bill, that the drug trade is enthusiastically favorable to it. It will aid those who are obliged to cut prices for self-protection as well as those who are resisting the pressure to do so for the same reason. One of the most prominent of price cutters in Kansas stated to your chairman that he would vigorously support the Stevens' Bill—that he had never cut prices from choice but was forced to it by department stores, which employed this means of advertising.

To all concerned, it should be stated again and again, that this bill will *never* become a law unless retailers exert themselves and give active moral support to those who are endeavoring to promote its enactment.

There are many topics which your committee might present for study of the future Committee on Drug Reform. Your chairman will endeavor to name some of these:

1. The average druggist is showing less and less originality in his profession; is depending more and more, entirely upon the manufacturer even to the purchase of such preparations as Tincture of Ginger and Essence of Peppermint. What may this Committee do to remedy this loss of originality and initiative leading eventually to complete atrophy?
2. The handling of remedial agents by wholesale and retail grocers is becoming more and more pronounced, leading to the distribution of substandard and deteriorated goods such as sweet spirit of nitre, hydrogen peroxide, etc. What may be done along legislative lines to prevent this injustice to the public?
3. Many of the nostrums formerly advertised in the daily papers, such as crystos, spurmax, etc., also articles consisting of inexpensive ingredients having exorbitant prices, are becoming to an extent controlled by the application of the Sherley Act. What may be done by your future Committee to urge the more general application of this Act?
4. Grave injustice is caused to the public by advertisements in cheap magazines and some of the lodge journals which continue to publish fake medicine advertisements; for example, Dr. Grain's cure for deafness (found to be a solution of potassium iodide). For the betterment of such conditions this Association should systematically co-operate with the work of the American Medical Association.

The report of the British Pharmaceutical Parliamentary Conference on Proprietary and Patent remedies, a summary of which was published by J. H. Beal in the February issue of the Practical Druggist, should be studied by every pharmacist. The findings of this committee are not by any means encouraging to the proprietary and patent medicine interests. The recommendations of this committee seem to your chairman fair and even liberal. We would recommend that this report of Professor Beal's be reprinted in the Journal of this Association and widely circulated.

Respectfully submitted for the Committee,

L. E. SAYRE, Chairman.

Chairman Freericks: You have heard the report of the Committee on Drug Reform, and it is before you. What is your pleasure?

General Secretary Day: I move that the report be accepted and referred to the Committee on Publication, and that the recommendations be approved.

The motion having been regularly made and duly seconded, and the question put, the same was declared carried.

Chairman Freericks: The next order of business is a paper by Prof. Arny.

Prof. Arny: I move that it be read by title and referred to the proper committee for publication.

The motion was seconded by Mr. Binz, and the question having been put, was declared carried, and the paper was read by title and referred to the Committee for publication.

Chairman Freericks: The next paper is by Wilhelm Bodemann, and since the Chair feels deeply obligated to Mr. Bodemann for writing this paper, he would ask the privilege of reading it.

After discussion the paper was referred to the Publication Committee.

Chairman Freericks: The next paper is by Mr. Hugh Craig on the N. A. R. D. model anti-narcotic bill, a subject in which we are all interested. Mr. Thiesing is here and he has kindly agreed to read this paper for Mr. Craig.

THE N. A. R. D. MODEL FOR A STATE ANTI-NARCOTIC LAW

HUGH CRAIG, CHICAGO.

Because of the many requests received at the office of the National Association of Retail Druggists from pharmacists interested in legislative activities in their respective states, who desired some basis for the construction of a state law to supplement the federal anti-narcotic statute, and in recognition of the fact that the soon-to-open sessions of some forty state legislatures would be the occasion of a multitude of endeavors to put some sort of anti-narcotic measure upon the statutes, the N. A. R. D. executive committee, at the meeting held in December, 1914, invited Dr. J. H. Beal, Frank H. Freericks, Esq., and Hugh Craig to serve as a special committee to prepare a draft of a model for a state anti-narcotic law. The outcome of the endeavors of this committee was the draft which has come to be known as the "N. A. R. D. Model Anti-Narcotic Bill," the name being a bit inappropriate as the draft is not advanced as a model bill but as a model for a bill. This draft has been printed in full in the *Journal of the American Pharmaceutical Association*, in the issue of May, 1915; and in the same issue of the *Journal*, appeared an able analysis of its provisions by Dr. J. H. Beal. Any detailed reference to these provisions is, therefore, herein unnecessary, and such reference as needs be made to them will, of course, be a repetition in part of the text of Dr. Beal's article.

In the first place the purpose of the N. A. R. D. draft is to promote uniformity among the anti-narcotic laws of the several states and the Harrison law. Uniformity, with reference to the several states, is very important because of the unavoidable condition of law-evasion which obtains near the borders of two or more contiguous states whose statutes do not provide equally for the regulation and restriction of traffic in narcotics. If a person may cross from New York to Jersey City, or vice versa, and in the latter city obtain narcotics more readily than in his home community, and carry them into New York to dispose of them in an illegal manner, the effectiveness of the New York regulations is seriously impaired, despite the attempt at the restriction of interstate traffic made in the Harrison law. At best only the illicit distributor can be apprehended and punished; the source and channel for further traffic are not closed. The necessity for uniformity in general provisions of a state law and the federal act is clear to anyone who has had to attempt compliance with different provisions.

In appreciation of the fact that many existing state laws need but slight alteration to make them effective supplements of the federal act, the committee constructed a somewhat expanded form of draft from which desirable sections might be selected as amendments to the existing law. This form of draft was also considered best adaptable to revision as necessitated by local conditions or desires, because changes in any one or several provisions or their deletion would not effect the general purpose of the draft or disrupt its coherence.

The committee had in mind the necessity for the regulation of every channel for the distribution of narcotics and, as well, that for reducing to a minimum the opportunity for possessing these substances for immoral and illegal purposes. It is this last-mentioned necessity which, above all others, justifies the preparation of this draft. Many have argued that the federal anti-narcotic law

removes the necessity for state laws relating to the traffic in narcotics. This willingness to hand over to a paternalistic federal government the entire regulation of an intrastate practice is too patent an indication of a let-the-other-fellow-do-it attitude, a too complete relinquishing of state's rights. Also there is every indication that the federal law, in its provision to restrict the possession of narcotics, not had for purposes of sale or other disposal, constitutes an illegal encroachment upon the rights of the several states. Already the majority of decisions in the federal courts have been antagonistic to this extension of federal supervision. Not alone in this but in a number of other instances is it clear that intrastate traffic in narcotics can more effectively and more reasonably be regulated by a properly constructed state law than by the Harrison law and the regulations incident thereto.

In one point at which the N. A. R. D. draft differs from the federal law and on which the Harrison law has been assailed with an apparent indication of the act being changed, is the regulation of the dispensing of narcotics by a physician. It seemed to the committee that to discriminate against the exclusive office practitioner, whose numbers are large in every city, was uncalled for, and that the distinction in this regard should be drawn along the same lines as the exemption of preparations. Therefore the exemption of the physician, proposed by the committee, is based upon the quantity of the narcotic disposed of. These quantities are arbitrary, although sufficient for every legitimate purpose, and may, of course, be changed to suit the ideas of pharmacal bodies in any particular state.

The prescribed preparation is not discriminated against in this draft, as is, unfortunately, the case in the Commissioner of Internal Revenue's interpretation of the Harrison law. In general, the treatment of the dispensing of narcotics in pursuance of prescriptions is the same in this draft as in the state laws of recent enactment, although a stricter accountability is laid upon the possessor of narcotics, who might allege that they were obtained in a legitimate way, by specific requirements relative to the labeling of drugs dispensed on a prescription and possessed in consequence of such dispensing. Pharmacists are relieved from responsibility for the authenticity of prescriptions if they have exercised due care in the scrutiny thereof.

In the matter of exempting preparations containing minimum quantities of narcotics, the N. A. R. D. draft obviates the condition which was largely responsible for Treasury Decision 2213, denying exemption under the Harrison law to extemporaneous prescribed preparations, by providing that exemption shall extend only to preparations which contain other medicinal substances in admixture with the narcotics. The exemption also applies only to preparations containing but *one* of the opiates in the specified proportion (the same as the Harrison law). The right to sell these preparations is not, however, extended indiscriminately, itinerant vendors and storekeepers located less than a mile distant from a drug store or a physician's office being denied this right, and storekeepers located so as to escape this prohibition are required to obtain a license from the state board of pharmacy. A similar license is required to be obtained by wholesale dealers, manufacturers, and hospitals which do not employ a licensed pharmacist, physician, dentist, or veterinarian to supervise the handling of narcotics.

Specific definition is given of all those who in any manner may deal in or possess narcotics and also of their respective rights. Misrepresentation for the purpose of evading these definitions is made illegal. In this manner the operations of bogus concerns and the assumption of false professional titles is guarded against.

In making proof of possession *prima facie* evidence of dealing in the proscribed substances, in providing for the punishment of individual members of firms and corporations and of agents, and in relieving prosecutors from the

obligation of negativing exemptions, the draft does much to assure the effective enforcement of its provisions. The enforcement of the provisions is entrusted to the state board of pharmacy and public prosecutors, the board of health being given power to supervise the practice of physicians in the treatment of addicts to the use of a narcotic. There can be no question but that the efforts of the board of pharmacy in connection with the enforcement of an anti-narcotic law will be received with better grace by pharmacists, than would the efforts of a board of health, because the former body may more reasonably be expected to have the peculiar appreciation of pharmacal practice, and medical practice as well, which is so necessary to guard against unreasonable procedure. That the assistance of public prosecutors is necessary need but be mentioned in view of the general recognition of the limitations of boards of pharmacy in funds and agents.

Constructed with an ever-present purpose to correlate effectiveness and reasonableness, the N. A. R. D. model for a state anti-narcotic law affords a valuable basis for the work of legislative committees of pharmacal bodies, who are confronted with the necessity of preparing a draft for a state law to meet a widespread demand for the enactment of anti-narcotic legislation, or are disturbed by the furtherance of measures of this sort, by well-meaning but poorly informed advocates. The draft is not offered as an ideal model; but, as a foundation for real constructive work, it offers the result of careful deliberation. Insofar as the committee which framed it and the association which stands sponsor for it are concerned, there is no intention of cramming the full, unrevised text of this draft upon any who may be engaged in the consideration of anti-narcotic legislation, and assistance will be gladly extended to those who desire to make changes in it.

Chairman Freericks: You have before you the paper of Mr. Hugh Craig on a model anti-narcotic law. What is your pleasure?

Mr. Weinstein: I move that it be received and that it take the usual course. Motion seconded by Mr. Binz.

Chairman Freericks: Are there any remarks?

The motion having been regularly made and duly seconded, and the question called for, the same was declared carried.

The next paper is by Dr. Fischelis on "Providing Needed Education."

Professor H. V. Arny then read Dr. Fischelis' paper. This paper was published in the October number, page 1235.

Chairman Freericks: You have heard the paper, what is your pleasure?

Prof. Arny: I move that it be referred to the Committee on Publication because it should not only be published, but there may also be some ideas contained therein worth considering.

President Mayo: I suggest it be referred to the Committee on Publication with the approval of the Section; the added suggestion that it was approved by the Section would cover the ground.

Seconded by Mr. F. W. Nitardy.

Mr. Lichthardt: There are two very excellent ideas in it. First, to send out these bulletins to the newspapers. It will probably have to be done in a small way at first, and sent to the very prominent papers. It is a very excellent idea. That is the way to deal with the problems that we were dwelling upon a little while ago with respect to the dispensing physician.

Now, on the matter of abstracts. In the Scientific Section we prepared abstracts; that is, Mr. England and myself, on all the papers but two, I think, which

were submitted and the authors of which were absent, and instead of just reading the paper by title we read the abstracts and it gave those present an idea of what the paper contained. It is a much better idea to prepare the abstracts and publish them in the Journal before the meeting, and it will very likely do away with some objectionable papers.

The motion having been regularly made and duly seconded, and the question put, the same was declared carried.

Chairman Freericks: There has been referred to this Section from the Commercial Section, that is, from the general session to the Section on Education and Legislation, and then to the Commercial Section and from the Commercial Section to this Section, a most interesting paper by Dr. A. O. Zwick of Cincinnati. The Chairman of your Commercial Section and your present Chairman feel under obligation to Dr. Zwick because this paper touches upon a subject of vital concern to pharmacy as treated by a physician.

This paper is really presented in answer to the raising of the question as to whether prescription charges,—the prices as fixed on prescriptions—have not something to do with the growing evil of dispensing by physicians. The paper does not answer the question either one way or the other directly; but that was the thought, and I want to submit it to you for future consideration, to let you know how important a thought it is.

Moved by Dr. Anderson, and seconded by Mr. Nitardy, that the paper take the usual course.

Chairman Freericks: Now, the last thing on the program, outside of the election of officers, is the report of the Voluntary Conference for Drafting a Modern Pharmacy Law.

We appreciate fully what is necessary in order to take up the subject intelligently, but a report has been prepared showing the progress of the work to date, and I believe it will be interesting.

REPORT OF THE VOLUNTARY CONFERENCE FOR DRAFTING MODERN LAWS PERTAINING TO PHARMACY.

F. H. FREERICKS, CHAIRMAN.

Impressed by the frequently expressed need for greater uniformity in the several state laws concerning pharmacy, and for making such laws more in keeping with general advancement and progress, the Chairman of your Section on Education and Legislation by and with the co-operation of his associates and the Secretary undertook to commence that work. It was agreed that a very general interest from every state would need to be created and to that end it was deemed essential that the co-operation of every state association and state board of pharmacy should first be sought with a view of forming a voluntary conference in which every such state association and state board of pharmacy would be represented by one member.

Shortly after the last annual convention of the A. Ph. A., at Detroit, the Chairman of your Section submitted an outline of the intended work to the presidents of every state pharmaceutical association and state board of pharmacy, and requested each of them to name a representative for their respective association or board, who together would then constitute a voluntary conference under the auspices of the Section on Education and Legislation. Almost without exception the responses were most hearty, and the interest shown most general.

Some few pointed to the fact, that in the states from which they came the present laws were fairly satisfactory, but in such cases in keeping with the great majority who responded it was agreed that more uniformity in state laws was highly desirable, and new features might be added in order to better safeguard the public interests and welfare. It is with no small measure of satisfaction that we point to the fact that forty-two (42) state pharmaceutical associations, and forty-four (44) state boards of pharmacy through their presidents appointed members to the Voluntary Conference. The list of members so appointed is separately shown in connection with some new provisions now under consideration by the Conference, and which are attached to and made a part of this report. It should in that connection be mentioned that owing to the death of Mr. James O'Hare of Rhode Island, President Armstrong of the Rhode Island Association named Mr. Frank A. Jackson to fill the vacancy thus created. Owing to the inability of Prof. Hemm of Missouri to further serve, the vacancy thus created was filled by the appointment of Mr. Chas. E. Zinn.

In outlining the work of the Voluntary Conference it was at first thought possible to present a complete draft of laws pertaining to pharmacy at this meeting to be expressive of the best opinion of at least a majority of the Conference members, but within the past six weeks this has been found to be hardly possible and certainly inadvisable. After the Conference members had been generally appointed they were requested to submit changes which they deemed necessary in their respective present state laws and to suggest new features for a compilation of modern laws such as they deemed desirable. Responses in this connection were quite general, and temporarily holding in abeyance the amendments thought necessary to the existing laws in different states, attention was first given to the new features which seemed desirable. Suggestions for such new features were put together and then again submitted to all of the Conference members, to find a fairly general approval. After such fairly general approval of such suggestions they were drafted into more concrete form so as to secure an idea as to the scope and extent which might meet with the views of the membership. Unfortunately because of the mass of correspondence and the incident delays which always come when many are concerned, it was not possible to present these new features in such concrete form in time to have them find consideration at all of the state meetings held within the past two or three months. In some few states where they reached in time and where they might have been considered, the work already outlined for the conventions made it impossible to give the necessary consideration, while in other states they were most thoroughly considered and discussed. Since a complete draft of laws will be largely dependent upon the new features, which are found desirable, and since it is deemed of prime importance that such new features be discussed at this convention, it has therefore been decided that they should at this time be first and separately submitted, together with such criticisms and suggestions as have been made by state associations and state boards which have found opportunity to consider them. There are eight of such new provisions at present under consideration, and these are in printed form and have or will be distributed to all who are now present, so that they may find intelligent consideration and discussion, properly constituting a part of this report as already stated. It must be understood that the separate provisions as herein and herewith presented have not been put in their final and most concrete form, the thought being to simply submit a fair outline for ready understanding, and even if the separate provisions meet approval, in their present form, it is deemed likely that the phraseology can be much improved.

To this time it has been reported that the State Association and in some instances the State Board of the states of Colorado, Massachusetts, Ohio, Pennsylvania, South Carolina and Washington have given thorough consideration to the new provisions as presented in concrete form. In addition they have been

thoroughly considered by representatives in the conference from California, Connecticut, Illinois, Michigan, North Carolina, North Dakota, and have found some consideration by the Missouri State Association. The representative from California does not approve Provisions 1 and 2, but in general approves all of the other provisions. The Colorado State Association and State Board approve Provisions 1, 2 and 3 and in part 4 and 5. They disapprove of 6 and 7 because opposed to Reciprocal Registration, and withhold action on Provision 8. The Connecticut Board of Pharmacy in general approves all of the provisions. The Massachusetts Association approves all of the provisions except No. 5, believing that Provision No. 5 would force the prerequisite, which does not seem to be favored. The Michigan State Board and State Association representatives favor all of the eight provisions, but doubt the possibility of securing the first three as a law. The Illinois and North Carolina Association representatives approve all of the eight provisions in the strongest terms. The North Dakota Representatives approve all the provisions, expressing the opinion, however, that some change should be made to provide Reciprocal Registration for those who were registered as pharmacists before the college prerequisite was adopted. The Missouri State Association approves the provisions in a general way, but indicates that they think well of their present law. The Ohio State Association approves the principles of the eight provisions, with a clear understanding and marked satisfaction. The Pennsylvania State Association and Board approve the first seven provisions, but disapprove the eighth provision, believing that all laws pertaining to pharmacy should be enforced only under the supervision of officials connected with pharmacy. The South Carolina Association unanimously approved all of the eight provisions. The Washington Association and apparently its Board of Pharmacy approved the first seven provisions, excepting that in Provision No. 5 they favor a course of study of 1800 hours instead of 1200 hours. No action was taken with reference to Provision No. 8, because it was believed doubtful that a change might be secured in the Washington law where the enforcement now rests with the Department of Agriculture. Comments were also received from Dr. James H. Beal, which are of a general nature, but whose further help in the work of the Conference will be of great advantage.

Your chairman would now recommend:

1st.—That the new provisions submitted find consideration at this time.

2nd.—That the Voluntary Conference be continued under the auspices of the Section on Education and Legislation, until the work is finally completed with the presentation of a draft of Modern Laws Pertaining to Pharmacy.

3rd.—That an appropriation of $100.00 be allowed the Section for the coming year to continue this work.

4th.—That with such changes as may be decided upon, the eight new provisions be referred back to the Voluntary Conference under the chairmanship of the chairman of the Section on Education and Legislation elected for the new year.

5th.—That with such changes as may be decided upon, the provisions be submitted to the National Association of Retail Druggists, the Conference of Pharmaceutical Faculties, the National Association of Boards of Pharmacy, and to other National Associations which are concerned with pharmacy. Also to the American Medical Association and to all of the State Medical Associations, their particular attention being directed to the first three and to the eighth provisions. That in submitting the provisions for such consideration they be accompanied with a request for an expression of opinion concerning such as may be of special interest.

In conclusion attention is directed to the fact that nearly all, if not all, of the provisions herewith submitted for further consideration, in some manner affect special interests. It is understood or rather must be taken for granted, that there will be opposition to the provisions even if generally approved by retail

pharmacists and by the legitimate members of the medical profession. In one form or another such opposition has already been evidenced. It must be in mind, too, that such opposition may not always be in the open, for at times special interests can best attain their purpose by keeping themselves in the background. In this entire work the aim must be primarily the public welfare and its needs. Selfish aims, whether on the part of retail pharmacists or some of the other branches of pharmacy, or those engaged in medicine, are unworthy of the work which has been undertaken.

VOLUNTARY CONFERENCE FOR DRAFTING MODERN LAWS PERTAINING TO PHARMACY.

Under the Auspices of the Section on Education and Legislation of American Pharmaceutical Association. Frank H. Freericks, Chairman; R. A. Kuever, Secretary; W. S. Richardson, George B. Topping and Zada M. Cooper, Associates.

Conference members appointed by Presidents of State Associations and Boards of Pharmacy.

Representing State Associations:—Alabama, L. L. Scarborough; Arizona, Thomas E. Thorpe; Arkansas, A. L. Morgan; California, D. R. Rees; Colorado, A. W. Clark; Connecticut, S. M. Aller; Delaware, Albert Dougherty; District of Columbia, W. S. Richardson; Florida, W. D. Jones; Georgia, Herman Shuptrine; Idaho, Rosco W. Smith; Illinois, Prof. C. M. Snow; Indiana, A. F. Sala; Iowa, George D. Newcombe; Kansas, C. C. Reed; Kentucky, Robert J. Frick; Louisiana, Joseph W. Peyton; Maryland, James E. Hancock; Massachusetts, Ernest O. Engstrom; Michigan, John H. Webster; Minnesota, Charles H. Huhn; Mississippi, A. S. Coody; Missouri, Prof. Francis Hemm; Montana, J. A. Riedel; Nebraska, Charles R. Sherman; Nevada, H. J. Duncan; New Hampshire, Edwin C. Bean; New Jersey, George M. Beringer; New Mexico, G. S. Moore; New York, Dr. William C. Anderson; North Carolina, L. W. McKesson: North Dakota, W. S. Parker; Ohio, Waldo M. Bowman; Oklahoma, A. W. Woodmancy; Pennsylvania, S. C. Henry; Rhode Island, James O'Hare; South Carolina, F. M. Ellerbe: South Dakota, D. F. Jones; Tennessee, Edw. V. Sheely; Texas, Sam P. Harbin; Utah, James L. Franken; Vermont, W. R. Warner; Virginia, Walter G. Williams; Washington, Prof. Charles W. Johnson; West Virginia, Walter E. Dittmeyer; Wisconsin, Prof. Edw. Kremers.

Representing State Boards of Pharmacy:—Alabama, W. E. Bingham; Arizona, T. L. McCutchen; Arkansas, Frank Schachleiter; Colorado, Frank E. Mortensen; Connecticut, John A. Leverty; Delaware, Reuben M. Kaufman; Georgia, Charles D. Jordan; Idaho, T. M. Starrh: Illinois, Frederic T. Provost; Indiana, Jerome J. Keene; Iowa, David E. Hadden; Kansas, W. S. Henrion; Kentucky, Addison Dimmitt; Louisiana, E. H. Walsdorf; Maine, Frank T. Crane; Maryland, J. Fuller Frames; Massachusetts, Albert J. Brunelle; Michigan, Leonard A. Seltzer; Minnesota, R. L. Morland; Mississippi, T. O. Slaughter; Missouri, Charles Gietner; Montana, W. R. Montgomery; Nevada, Robert L. Prouty; New Hampshire, Herbert E. Rice; New Jersey, Lewis W. Brown; New Mexico, B. G. Dyne; New York, Warren L. Bradt; North Carolina, W. W. Horne; North Dakota, H. L. Haussamen; Ohio, Edward Voss, Jr.; Oklahoma, J. C. Burton; Oregon, J. Lee Brown; Pennsylvania, Lucius L. Walton; Rhode Island, Howard A. Pearce; South Carolina, H. E. Heinitsh; South Dakota, F. W. Halbkat; Tennessee, O. J. Nance; Texas, W. H.Cousins; Utah, John Culley; Vermont, Wilfred Root; Virginia, W. L. Lyle; Washington, D. B. Garrison; West Virginia, Alfred Walker; Wisconsin, Edward Williams; Wyoming, C. B. Gunnell.

PROVISIONS FOR THE DRAFT OF MODERN PHARMACY LAW UNDER CONSIDERATION BY THE VOLUNTARY CONFERENCE FOR DRAFTING SUCH A LAW.

It will please be understood that such of the provisions as may find general approval are intended to be embodied in a complete draft of laws pertaining to pharmacy, which shall include all of the desirable provisions which are found at present in the best and most complete pharmacy laws of the several states. It of course is in mind that some provisions of a Modern Pharmacy Law, particularly the provision with reference to the College

Prerequisite Law, will not be deemed desirable in all of the states, and it is understood that features which are not adapted for some of the states can be discarded by such states when they would consider the draft of a Modern Pharmacy Law as a basis for adoption or changes. It will please also be understood that some of the separate provisions as herein submitted for consideration are entirely independent of each other, and that only such provisions should be considered together as by their text show that this must be intended. Finally, it will also please be in mind that it will not be the aim to discard any more exacting requirement which may be found in some of the present pharmacy laws, but to the contrary it will be the aim to have any of the provisions herein which may be found to be desirable, fit in with such possibly more exacting requirements as now may exist. In considering what should be contained in a Modern Pharmacy Law it is submitted that we should be controlled only by the public need and welfare and by the need of correct pharmacy within reasonable limits. The thought that desirable features may be strongly opposed by special interests should not hinder us from promulgating such desirable and necessary features. Let us first decide upon what within reason is desirable and necessary, and thereafter decide upon ways and means for best securing enactment into law. We may find determination and strength in the fact that whatever public welfare requires and fairness demands will ultimately be accomplished.

Provision No. 1.—All chemicals and drugs, the maximum adult dose of which according to standard authorities on medicine or materia medica is one drachm or less either fluid or solid, as also compounds and preparations containing such chemicals and drugs, and inclusive specially of Morphine, Opium, Heroin, Chloroform, Alcohol, Cannabis Indica, Hydrated Chloral and Acetanilide, or any derivatives or preparations of said substances, are hereby defined to be of potent character: Provided, that drugs herein not specially named, the maximum adult dose of which is greater than one (1) drachm, but containing active principles of lesser maximum adult dose, as well as compounds and preparations of such drugs, shall be construed to be of potent character only when they contain the isolated active principle as such, and not as a constituent of the original drug.

NOTE.—If there are to be legal restrictions over those who would sell so-called patent and proprietary medicines it is essential that some legal ground be found upon which such restriction can be constitutionally based. If the right of sale and distribution is to be limited to qualified people, the means must be provided for bringing into use the special knowledge of such qualified people, and this can be done only by ready information about the contents of active drugs. At the same time it is all-important to avoid unfairness and the destruction of property rights by requiring publication of complete formula. It was therefore decided to submit a definition for potent drugs, as supplemented by the further requirement to show on the label the actual contents of potent drugs, which gives opportunity for the application of special knowledge pertaining to their use as remedies.

Provision No. 2.—All chemicals, drugs, their compounds and preparations, of potent character as herein defined, when intended for use as medicines, shall be dispensed, distributed or sold only in containers bearing a label for ready inspection, upon which such potent drug content is plainly shown, as also the percentage of such drugs contained therein: Provided, that when such chemicals and drugs are dispensed in keeping with a written record as made by a licensed physician, dentist or veterinarian, and such written record is retained or filed by the pharmacist, physician, dentist or veterinarian, the label requirement herein shall be satisfied when the container of the chemicals and drugs so dispensed contains a number or mark, corresponding with a number or mark on the written record, so that it may be readily identified.

NOTE.—The aim of this provision is to require all packages of medicines to show their contents of potent drugs, no matter by whom prepared or distributed at retail. An exception is made with reference to medicines supplied by or on the order of a physician, dentist or veterinarian. In every such case, however, whether the medicine is dispensed by a physician or by a pharmacist, a record must be made, either on a prescription blank or in a record book, to show the potent drugs which have been dispensed, and the container is then to be identified by a number corresponding with a number on the prescription or other written record. It will be noted that this plan contemplates no distinction between so-called patent medicines and medicines supplied by or on the order of physicians, it being deemed alike important and a public need that it can always be determined what potent drugs a patient may be taking, or may have taken.

Provision No. 3.—All chemicals, drugs, their compounds and preparations, when of potent character as herein defined, when intended as medicines, except as hereinafter provided, shall be dispensed and sold at retail to the consumer only by or under the supervision of a registered pharmacist; compounds and preparations of such chemicals and drugs shall be compounded and prepared only by or under the supervision of a registered pharmacist. All such chemicals, drugs, their compounds and preparations, when intended for distribution or sale at retail as medicines in their original packages, shall be labeled to show that they have been prepared by or under the supervision of a registered pharmacist. When imported into this state for sale at retail, they shall in like manner show that they have been prepared by or under the supervision of a pharmacist licensed or registered at the place where compounded or prepared. Such chemicals, drugs, their compounds and preparations, when compounded, prepared and labeled in their original packages as herein required may be dispensed or may be dispensed from and sold by registered physicians, dentists and veterinarians without showing on the label by whom compounded or prepared: Provided, also, that such chemicals, drugs, their compounds or preparations, when compounded, manufactured or prepared by or under the supervision of a registered pharmacist, may be sold or dispensed at retail in communities or places located at least — miles distant from a registered pharmacy, by storekeepers licensed for that purpose by the Board of Pharmacy.

NOTE.—Under this provision it is the principal requirement that all medicines containing potent drugs must be compounded by or under the supervision of a registered pharmacist. This applies alike to so-called patent and proprietary medicines, as also to all medicines dispensed by physicians. It would require every patent and proprietary manufacturer and manufacturer of pharmaceuticals to have at least one registered pharmacist in charge. It would not interfere with the dispensing of medicines by doctors, but would require that the medicines which they dispense are prepared under the supervision of a registered pharmacist, and would prevent them from compounding their own medicines unless they are also registered pharmacists. It would restrict the sale at retail of all medicines containing potent drugs, other than those dispensed by physicians to their patients, exclusively to registered pharmacists, excepting in communities where there are no registered pharmacists within a certain distance, and at such places storekeepers duly licensed by the Board of Pharmacy would be permitted to sell such medicines when compounded under the supervision of a registered pharmacist.

Provision No. 4.—The State Board of Pharmacy shall consist of five members to be nominated by the State Pharmaceutical Association, and to be appointed by the Governor, etc., at least three (3) of whom shall be graduates of a reputable College of Pharmacy, and all of whom shall be actively engaged in retail pharmacy, having had at least ten (10) years of practical experience therein, the requirement for college graduation not to be applicable to those who at present are members of the existing State Board of Pharmacy.

Provision No. 5.—Colleges, Departments and Schools of Pharmacy, to be recognized as such by the State Board of Pharmacy, shall require for graduation a course of study of at least two (2) years, such two year course to be divided by an interim of at least two months, and to provide for at least twelve hundred (1,200) hours of study. They shall have a Chair in Pharmacy, Chemistry and Materia Medica, each in charge of a professor having besides the necessary special learning and training either an academic or scientific degree, or both, from some reputable institution of learning: Provided, that nothing contained in this Section shall apply to those who when this Act becomes effective are or have been teaching in Colleges, Departments or Schools of Pharmacy.

Provision No. 6.—The State Board of Pharmacy may in its discretion grant Certificates of Registration to persons who furnish proof that they have been registered by examination in some other state, and that they are of good moral character, provided, that such other state in its examination requires the same general degree of fitness as is required by examination in this state, and that the applicant qualifies in all other respects as is required for registration by examination within this state, and provided also, that such other state or states in like manner grant reciprocal registration to pharmacists and assistant pharmacists of this state. Applicants to the State Board of Pharmacy for Reciprocal Registra-

tion shall defray all necessary expense for making an investigation into their character and general reputation, as well as pharmaceutical standing in the state where they formerly resided, such expense of investigation not to exceed the sum of ten (10) dollars, and for the purpose of such investigation and report thereon, the State Board of Pharmacy may secure the service of individuals or associations who are engaged in the work of compiling such information, at an expense not to exceed ten (10) dollars in each separate case. In addition, an application for Reciprocal Registration shall be accompanied by an original registration fee of $10.00, which shall be refunded in case registration is not granted.

NOTE.—It is the aim of this provision to allow a Pharmacist registered by examination in a state not having the College prerequisite, to become registered in another state which has such College prerequisite, if the applicant can prove that in addition to his registration by examination he also is a graduate of a recognized College. This provision also looks to placing the activities of the National Association of Boards of Pharmacy on a legal basis within each state by permitting that the information which said Association is prepared to furnish regarding an applicant for reciprocal registration, may be secured by the different State Boards at an expense not to exceed $10.00, which must be paid by the applicant for reciprocal registration.

Provision No. 7.—In order that the State Board of Pharmacy may be informed, and properly determine the status of the Boards of Pharmacy of other states desiring Reciprocal Registration, and that it may be generally advised regarding progress in pharmacy throughout the country, the said Board shall annually select one of its members, who shall meet with like representatives of such other State Boards of Pharmacy, as may be arranged, for the purpose of discussing and determining the degree of fitness required by such Boards, and the general advancement as made in Pharmacy. The expense of such representative shall be paid and allowed as are all other lawful expenditures of the members of the Board of Pharmacy. At meetings arranged for between the representatives of this State Board of Pharmacy with the representatives of other State Boards of Pharmacy desiring reciprocal registration there may be adopted uniform regulations and requirements which are deemed desirable by each of said representatives for their respective states to govern reciprocal registration, but such rules and regulations shall not be construed as based upon agreement by an official of this state with officials of other states, and they shall be binding only if adopted by the State Board of Pharmacy as its own rules and regulations, and then only to govern within this state as the result of independent decision on the part of the State Board of Pharmacy, without any agreement by or with other State Boards of Pharmacy. The representative of the State Board of Pharmacy as such shall not enter into or join in the formation of any association depending upon agreement between the officials of this state with the officials of other states, but this shall not be construed to prevent such representative in his individual capacity from joining or being a member of an association which may be constituted of the representatives of State Boards of Pharmacy, also acting in their individual capacity. Any association so existing which is engaged in the compilation and study of the work of State Boards of Pharmacy, and which has for its object the general advancement of pharmacy and the keeping of records pertaining to the reciprocal registration of pharmacists, may at the discretion of the State Board of Pharmacy be given such information as it possesses pertaining to such aims and objects. The State Board of Pharmacy at an expense not to exceed one hundred ($100) dollars annually may subscribe for and secure the services of an association engaged in the compilation of pharmaceutical information and progress specially adapted for securing the greatest efficiency in the work of said Board.

NOTE.—This provision aims first of all to specifically legalize the expense of representatives of Boards of Pharmacy in meeting with representatives of other Boards of Pharmacy. It avoids agreement between officials of the several states which might be unconstitutional, and yet allows representatives of State Boards in their individual capacity to belong to an Association which is organized for the purpose of compiling and disseminating information of value to all of the several State Boards of Pharmacy. Finally, it permits the several State Boards of Pharmacy to subscribe for the services of such an Association, thus indirectly defraying the expense of maintaining it. In order to legalize such expenditure, the Association of Boards of Pharmacy is placed on the basis of a Bureau of Information, which renders needed service for an annual consideration, just as a Commercial Agency renders service to Commercial Enterprises, for an annual subscription fee.

Provision No. 8.—There shall be established within this state the office of a Drug Commisisoner, who shall be selected and appointed at a joint meeting of the State Medical Board and the State Board of Pharmacy by said Boards. He shall hold office for a term of five (5) years, until his successor has been appointed, subject to removal for incompetency or other good cause. Subject to the authority of the State Boards of Medicine and of Pharmacy in joint meeting, it shall be the duty of the Drug Commissioner to enforce the Pure Drug, Poison and Narcotic Laws of this state, and for that purpose he may employ chemists, inspectors and other necessary employees within the appropriations allowed him for the enforcement of said laws. Within thirty (30) days after this Act is in force it shall be the duty of the President of the State Board of Pharmacy to call a joint meeting of the members of the State Medical and Pharmacy Boards, at the capital of the state and at a place to be designated by him, such meeting to be called on a notice of at least ten (10) days. At such joint meeting, it shall be the duty of the members of both said Boards to attend, they shall organize by selecting a President, Vice President and Secretary of said joint boards. The Secretary of either the State Medical Board or the State Board of Pharmacy, as decided at said meeting, shall act as the Secretary for said joint boards, he shall be allowed such extra compensation as may be decided, not to exceed the sum of one hundred ($100) dollars annually, and it shall be his duty to keep a separate book of the Minutes and Proceedings of said joint boards. Said boards shall meet in joint session at least annually, and at such other times as may be decided at such joint meetings, and also at the call of the President. If membership on said respective boards be of unlike number, the members of the board having the largest number shall collectively have no greater number of votes than there are members of the smaller board. In the absence of agreement in the selection of a Drug Commissioner at joint meetings held for that purpose, such failure to agree shall be certified to the Governor, who thereupon shall make the appointment. It shall be the duty of said boards in joint meeting to adopt rules and regulations to govern them for the purpose of such joint meeting, and to govern the Drug Commissioner in the performance of his duties. At the annual meetings of said boards in joint session after becoming fully informed as to the needs and requirements in that respect, said boards in joint meeting shall decide upon the annual appropriation to be paid out of the funds of the state necessary for conducting the office of the Drug Commissioner, and shall submit the needs for such annual appropriations to the proper committee or committees of the General Assembly for suitable action by it.

NOTE.—The enforcement of Drug, Poison and Narcotic Laws should be under the control and supervision of those who have special knowledge pertaining to them and their correct use. In nearly all of the states this important need is ignored. Physicians and pharmacists are equally and primarily interested, and in many respects such laws must govern them alike. It therefore has been deemed advisable by some, that the supervision and enforcement of such laws should be under the control of the recognized Medical and Pharmaceutical Authorities. The thought has been expressed also that by thus bringing together the State Authorities concerned respectively with medicine and with pharmacy, there will be greater opportunity for mutual understanding and more friendly relationship between the two professions.

Now, the Chair would like to state that it would be within your province to adopt the recommendations that appear in this report, other than those that have become impossible of adoption because of existing conditions, and a motion of that kind, to that effect, would be entertained.

Moved by Mr. Nitardy and seconded by Mr. Godding that the recommendations numbers 2, 3, 4 and 5 contained in the report of the Voluntary Conference for Drafting a Modern Pharmacy Law be adopted and that the report be referred for publication..

The motion having been regularly made and duly seconded, and the question put, the motion was declared carried.

Chairman Freericks: I wanted to report on the provisions of a Modern Pharmacy Law, but this will have to go over until next year. The last thing

on the program will be the election of officers. I understand this has to be by ballot. At the last session the nominations were closed for that session and further nominations are in order for all of the offices.

Dr. Anderson: I move that the nominations be closed finally and that the Acting Secretary be instructed to cast the ballot for the Section for the election of the officers nominated.

Seconded by Mr. Nitardy.

The motion having been regularly made and duly seconded, and the question put, the same was declared carried.

The Acting Secretary then cast the unanimous ballot of the Section for, Chairman, Frank H. Freericks; Associates, Louis Emanuel, Zada M. Cooper, and C. H. Packard, and for Secretary, R. H. Kuever.

There being no further business before the Section, a motion was made to adjourn, and the same having been duly seconded and the question voted, the Section thereupon adjourned sine die.

BACK-FIRING.

To many who have read the much over-written case of the Chicago infant who recently came into and went out of this world with certain deformities, the question doubtless occurred: What would the followers of Mrs. Eddy do in such a case? Logically the followers of this cult would have done just what happens to have been done by the physician in charge: Nothing. And the result, of course, would have been the same. Possibly because this line of thought is rather obvious, the *Christian Science Monitor* devotes over a column to the case. Under the sonorous title *"Ave Medicus Imperator,"* this journalistic champion of Mrs. Eddy's doctrines belabors the medical profession, charging that "the place of Caesar as a dispenser of life and death is to be taken by the modern physicion," and, further, that "the hospital is to usurp the position of the arena." The article, of course, is wholly in the nature of a back-fire. The poor human mite, whose short but tragic life and equally tragic death have proved such a boon to the sensational newspapers and such a grief to the thoughtful, really "passed over" strictly according to the tenets of Mrs. Eddy's disciples. We assume, naturally, that even the most rabid of that sect would hardly claim that thought-waves, either long or short range, would remedy a congenital deformity. The baby died because "treatment" was "absent."—*Journal A. M. A.*

Scientific Section

Papers Presented at the Sixty-Third Annual Convention

PRINCIPLES UNDERLYING THE USE OF VACCINES, BACTERINS, ANTITOXINS AND IMMUNE SERUMS AS AGENTS FOR THE PREVENTION AND CURE OF INFECTIOUS DISEASES.*

F. E. STEWART, PH. G., M. D., PHAR. D.

This is the first of a series of papers. The second will deal with Diagnostic Reagents and their uses in the diagnosis of infectious diseases. The third will consider the application of biologic products as therapeutic agents.—[EDITOR].

Infectious diseases are caused by the growth and multiplication in the body of bacteria, protozoa, moulds and yeasts. They are combats between lower and higher forms of life according to the general law of struggle for existence constantly going on between all forms of living matter. Closer analysis shows that the battle is between the protoplasm of the conflicting forces, with enzymes as weapons of offense and defense.

Groups of symptoms and phenomena caused by the growth and multiplication of these living organisms and representing the external or visible evidences of their growth and multiplication in the body have, in the past, been considered as diseases, in themselves. These phenomena may be compared to the noise and smoke of battle; the real conflict being between the microbial cells and the body cells. In the prevention and treatment of infectious diseases, we aim our weapons at the combatants, not at the noise and smoke.

The phenomena of recovery from infectious diseases have been investigated and as a result we have a new therapeutics in which modified infective agents and products resulting from artificially immunizing animals are used in treatment.

Bacteria. These one-celled microörganisms, now so well known to bacteriologists, are classed by some authors with the vegetables, others class them with the animals. However, their classification is more of an academic question than one of practical importance. The bacterial cell may be berry-shaped, rod-shaped, or spiral, giving rise to the names coccus (pl. cocci), bacillus (pl. bacilli), and spirillum (pl. spirilla), respectively. The cocci may grow in pairs (diplococci), in bunches like grapes (staphylococci), in chains (streptococci), etc. And their

*Read before the Scientific Section, A. Ph. A., San Francisco, August, 1915.

[1] *Bacterial Diseases*:—Diphtheria, pneumonia, influenza, whooping cough, gonorrhea, etc.
Protozoan Diseases:—Malaria, syphilis, relasping fever, sleeping sickness, etc.
Mould Diseases:—Aphthae or thrush, pityriasis versicolor, etc.
Yeast Diseases:—As incitants of disease in man yeasts have been much studied since 1894. Prominent in the literature are the contributions of Busse, Gilchrist, Curtis, Ophüls and Zinsser.

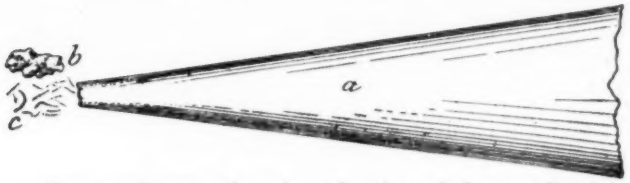

Fig. 1.—Comparative size of point of fine needle (a); bit of dust (b); bacteria (c).

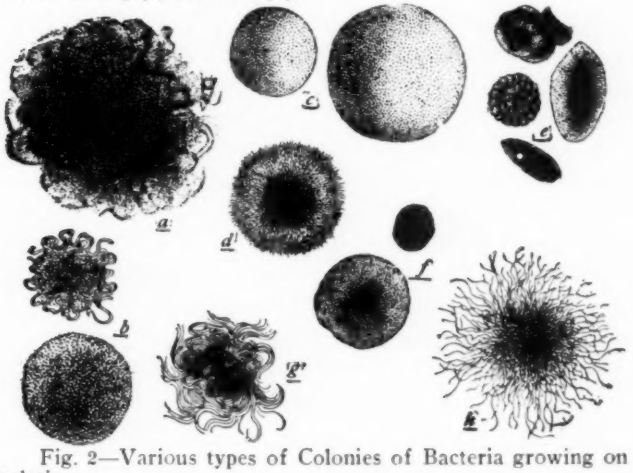

Fig. 2—Various types of Colonies of Bacteria growing on gelatin.

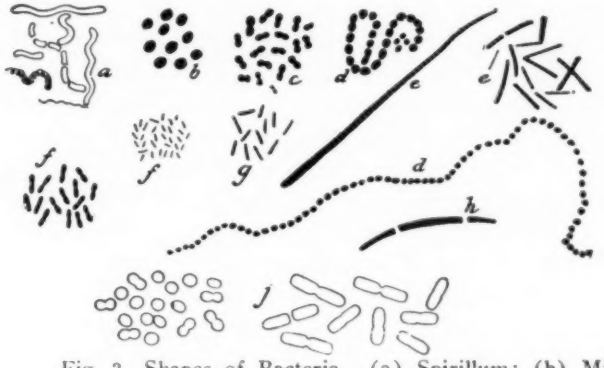

Fig. 3—Shapes of Bacteria. (a) Spirillum; (b) Micrococcus; (c) Diplococcus; (d) Streptococcus; (e-h) rod-shaped bacteria; (i and j) Divisions.

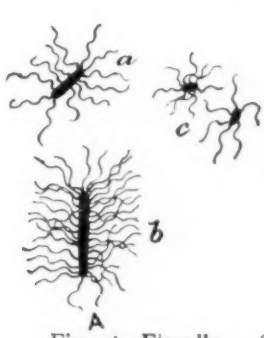

Fig. 4—Flagella. (a) Perutruchic; (b) Lophotrichic; (c) Montrichic.

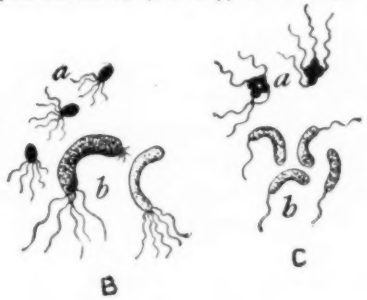

Fig. 5—Spore Production.

Illustrations from Conn's "Practical Dairy Bacteriology," published by Orange-Judd Co.

cultures may be colored giving such names as aureus, citreus, albus, etc. Their size, rapidity of growth, method of reproduction, sporulation, etc., are important subjects in relation to their method of growth and multiplication in the body as infective agents, but the limits of this paper will not permit detailed discussion and the reader is, therefore, referred to works on bacteriology.

Protozoa. The protozoa are essentially unicellular (one-celled) animals. The individual or "person" in this grade of the animal kingdom is a single cell; and, although we find protozoa which consist of aggregates of cells, yet an examination of the details of their structure and life history establishes the fact that the cohesion of the cells in these aggregates is not an essential feature of the life of the individual protozoon but a secondary and non-essential arrangement.

Yeasts and Moulds. The yeasts or blastomycetes and the moulds or hyphomycetes are closely related organisms, distinguished from each other and from the bacteria by morphological characteristics and methods of growth. The limits of this paper will not permit a detailed description. The vital properties or "functions" of living protoplasm in so far as this study is concerned, are best exhibited by the living protoplasm of the amebae.[2]

The Ameba. The ameba is a protozoan having a simple protoplasmic body with a nucleus and neucleolus and granules. The constant flowing out or extension of an ameba or other mass of protoplasm into irregular processes, called pseudopodia and their subsequent retraction or effacement, is termed *ameboid movement.* In the higher plants and animals the movements of the protoplasm are combined and directed so as to produce effects in relation to the whole organism built up of countless cells. The white corpuscles or leucocytes appear to be masses of free formative protoplasm, having the power of locomotion (ameboid movements) and capable of assuming various shapes.

Under the microscope a pseudopodium is observed to extend and into it the granules stream in constant current until the whole protoplasmic body has changed its location and form. These movements, ameboid movements and granule streaming as manifested by the protozoa, are intimately related to the processes of hunting, seizing, and ingesting food, and of the intercourse of the individuals of a species with one another and their evasion of hostile agencies. The same applies to the movement of cilia and flagella, which subserve the needs of the individual cell of which the moving protoplasm is the main substance.

Plants, Animals and Man.—In a Sense Colonies of Amebae. Plants and animals (including man), while made up of special organs and tissues and cells, yet consist of cell-units which manifest vital phenomena or functions inherent in the protoplasm itself, namely, contractility, irritability and automatism, reception and assimilation of food, metabolism with secretion and excretion, respiration and reproduction, phenomena we accordingly recognize as muscular or nervous, secretory or excretory, respiratory, reproductive and the like.

Yet in these organs and their tissue cells, however specialized to one function only, a residue of all or nearly all the other fundamental properties of protoplasm

[2]The ameba and the foraminfera afford convenient and classical examples of the protoplasm of the lowest animal forms; the white corpuscles of the blood, or leucocytes should also be examined. Vegetable examples are readily obtained from the cells of a growing shoot; while the living cells of *chara*, a genus of cryptogams, and other examples of protoplastic movement, should be observed.

remains and may be developed; and thus those changes which we call "adaptation to environment," and those pathological disturbances we term "disease" are alike provided for.

We thus find the vital functions of protoplasm taking part in the warfare between infective organisms and body cells.

The intracellular digestion of food by these lower forms of life has been contrasted with the "cavitary" or entral digestion of higher animals, that is, the digestion that goes on in the alimentary canal. In the latter, enzyme and acid (or alkalies) are poured out by the cells of the secreting organs and glands into the digestive canal, and digestion is extra-cellular.

The digestive organs and tissues of the higher animals are specialized. The digestive glands of the mouth produce ptyalin, a starch digester; the gastric glands produce pepsin, a protein digester; the pancreas furnish a digestive "juice" containing three enzymes, trypsin, amylopsin, and steapsin, which respectively digest proteins and starch, and split up fats.

The enzymes produced by the protoplasm of bacteria and protozoa are not the products of specialized organs and tissues as is the case with the higher forms of animals, but they are capable of digesting the proteins and carbohydrates which constitute their food. In the same manner the cells of the body are able to digest substances with which they are brought in contact.

The digestion carried on by the body cells not directly related to the alimentary canal and its secretory organs is known as *parenteral* digestion. For example, when protein, living or dead, is introduced into the tissues of an animal or man, the body-cells are stimulated to produce a specific proteolytic enzyme or digestive ferment which digests and destroys it.

What Is Meant by Pathogenicity. The protoplasm of the infective agent, having become a parasite, lives at the expense of the tissues of the host. As stated by Vaughan, the pathogenicity of a bacterium, or its power of producing disease, is dependent upon its ability to grow and multiply in the body tissues. Any microörganism which can grow and multiply in an animal body is pathogenic to that animal. To grow and multiply in the animal body, the invader must convert the proteins of the animal into its own proteins. A foreign protoplasm (bacteria, protozoa, etc.), can grow and multiply in the human body only if the invader is capable of digesting and utilizing the proteins of the body. All living cells grow by means of their own digestive ferments, and these must act upon the pabulum within their reach. If the ferment of the bacterial cell cannot digest and prepare food for the bacterium from the body protein (protoplasm) then the invading bacterial cell dies. If the digestive ferment produced by the body cells is rapidly and thoroughly destructive there is no bacterial development and the organism is innocuous.

Structure of the Protein Molecule. Protoplasm is composed chiefly of protein. According to Vaughan and his co-workers, all true proteins are constructed upon the same general plan, and consist of a central group, keystone or archon, around which are arranged sub-groups. The central group is common alike to all proteins. It is a poison, but not a toxin, that is, it is incapable of stimulating the body cells to produce an antitoxin when introduced into the animal body. Its poisonous properties are due to its powerful affinity for the secondary groups

of other proteins. The secondary group or groups of each protein molecule is specific. The power of the protein to stimulate the body cells to produce a specific proteolytic enzyme resides in the secondary groups.

Typhoid Fever as an Illustration of Infection and Subsequent Immunity[3]. The infective agent of typhoid fever is the typhoid bacillus. It is infective because by means of its digestive ferment it can feed on the proteins of man's body. This means that it can convert man's proteins into typhoid proteins and thus multiply its kind. Moreover, it is not, immediately on its entrance in man's body, destroyed by the ferments of the body cells. Having found admission to the body it proceeds to grow and multiply. This continues through the period of incubation, which in this disease is somewhere about ten days. During this period of incubation there is no effective resistance on the part of the body cells to the growth and multiplication of the foreign protein. During this time the man is not sick, and we conclude therefore that it is not the growth of the foreign protein which *per se* gives rise to the symptoms of typhoid fever. However, during this time the body cells are being prepared for their combat with the foreign protein. This preparation consists of the development in certain of the body cells of a new function, that of elaborating a new and specific ferment which will digest and destroy the foreign protein. When this new ferment begins its action the first symptoms of the disease appear. The active stage of the disease, with its symptoms and the lesions induced, marks the period over which the parenteral digestion of the foreign protein exists. Death may come from the too rapid breaking up of the foreign protein and the consequent liberation of a fatal dose of the protein poison, which is always formed on the disruption of the protein molecule, or it may result from some lesion induced by the products of this disruption, such as perforation and hemorrhage, or it may follow from chronic intoxication and consequent exhaustion. In case of recovery the individual is, for a time at least, immune to the typhoid bacillus because his body cells are now able to elaborate and make immediately effective the specific ferment which destroys the typhoid protein.

To this stimulating action of the secondary group of the protein molecule upon the body cells which causes the development in the body of the man a specific proteolytic enzyme, Vaughan has given the name "protein sensitization." "There is developed in certain body cells a new function, that of elaborating this new ferment."

Phagocytosis. Metchnikoff has demonstrated that those body cells, known as leucocytes, and commonly called white corpuscles of the blood, possess the power of digesting and disposing of foreign proteins when introduced into the animal body. The leucocytes are little masses of free protoplasm, similar to the ameba and capable of ameboid movement. The leucocyte, like the ameba, in feeding, projects a pseudopodium outward until it comes in contact with the food particle, which it now proceeds to engulf, and by means of its enzymes, digest. Metchnikoff teaches that the leucocytes have the power of destroying bacteria invading the body, and on that account gave to these organisms the name "phagocytes," or "cell eaters" (from *phagein*, to eat and *kutos, cell*). It is now generally conceded

[3]This illustration is taken from Vaughan's book entitled "Protein Split Products in Relation to Immunity and Disease."

that the tissue cells, as well as the leucocytes, possess the power of phagocytosis. They have, therefore, been fancifully described as "sessile phagocytes."

According to Metchnikoff, the digestive power of the phagocytes is exerted through the agency of enzymes or ferments known as "cytases."

FUNCTION OF THE BODY FLUIDS IN IMMUNITY.

Bacteria may be destroyed by the digestive action of the body fluids into which the enzymes have been discharged, and which therefore possess the same power of destroying bacteria originally characterizing the phagocytes themselves. Serum from the blood of an immunized animal (immune serum) manifests three main specific actions, namely, (a) bactericidal and lysogenic action; (b) opsonic action; (c) agglutination and the closely allied precipitating action. It is, therefore, assumed that these actions are due to certain antibodies. The bactericidal and lysogenic action is assumed to be due to the presence of *bacteriolysin* (*lysis,* to dissolve). Some authors believe that the body fluids also contain *bactericidin,* having the power of killing bacteria without dissolving them. The opsonic action is assumed to be due to *opsonins.* When a small quantity of immune serum is added to a suspension of the corresponding bacterium, the organism becomes agglutinated into clumps and motility is suspended or destroyed. This action is assumed to be due to the presence of *agglutinins.* The immune serum may not only cause agglutination, but when added to the filtrate of a culture of the corresponding bacterium, may produce a cloudiness and afterwards a precipitate. The name *precipitins* has been given to these hypothetical substances.

Antigens and Antibodies. In overcoming the infective agent the body cells of the animal undergoing the immunizing process develops certain protective substances above referred to. Possessed of these protective substances, the animal can subsequently withstand a more severe attack of the same infection and is, therefore, said to be immune. These protective substances are classed under the general head of antibodies, and the substances used for immunization are called *antigens.*

Practically any protein substance may serve as an antigen. Its injection gives rise to specific proteolytic, or digestive ferments, as we have already seen. According to Vaughan, all enzymes are composed of *complement* and *amboceptor.* The specific part of enzyme is the amboceptor. Each kind of protein when introduced into the animal body stimulates the body cells to produce specific amboceptor, the function of which is to prepare the protein for the lytic action of the complement. As already stated, the complement is not specific. It is not increased by the immunizing process. It is practically the same no matter from what animal obtained. It will cause the lysis of any kind of protein, provided the latter is first prepared for lysis by union with its appropriate specific amboceptor. For instance, if egg albumen is used as an antigen, the body cells are stimulated to produce specific proteolytic amboceptor capable of *sensitizing* egg albumin. The same applies to serum albumins and globulins, milk, epithelial cells, vegetable albumin, etc. It also applies to bacteria. Each kind of bacteria requires a specific amboceptor for its digestion. This amboceptor must be produced by the body cells and unite with the antigen (bacterium) before the complement can act upon it and cause *bacteriolysis.*

Stimulins, Opsonins and Bacteriotropins. It has long been taught by Metchnikoff and others that there are certain substances in the body fluids which aid phagocytosis. Metchnikoff regarded them as *stimulins,* or substances that stimulate leucocytes to become more actively phagocytic. On the other hand, Wright, Douglas, Hektoen and others have demonstrated that these substances aid phagocytosis, not by stimulating the leucocytes, but by preparing the bacteria for ingestion and digestion by them. Wright gave the name opsonins to these substances (from the Greek word *posono,* "to prepare food for."). They are also known as *bacteriotropins.* The source of opsonin is unknown. Thermostabile opsonin (opsonin not affected by low heat, 56-58° C.) is increased by artificial immunization and by disease. It is largely of the nature of amboceptor, which is also thermostabile, and increased by the immunizing process. It is, like amboceptor, specific, and is probably produced by the body cells, especially by the local cells at the site of infection. Thermolabile opsonin—largely occurring in normal serum—is, like complement, non-specific, and is not increased by the process of immunization. Complement is also thermolabile.

ACTIVE IMMUNIZATION.

The process of stimulating the body cells to produce antibodies (enzymes) is called *active immunization.* The immunity following disease is an example, but the term is usually applied to artificial immunization.

Vaccination. A vaccine is an infective agent so modified as to prevent its growing and multiplying in the body, but not so changed as to destroy its power as an antigen. When a vaccine is introduced into the body in small doses the body cells react, producing antibodies (enzymes), and a resulting immunity against the corresponding infectious disease, without marked disturbance to the system or danger to life.

Smallpox Vaccine. This is an attenuated living virus consisting of the infective agent of smallpox modified by passage through the cow. The virus in its passage through the cow becomes so modified that it can no longer produce smallpox, but is still able to stimulate the production of the specific antibodies (ferment, or specific amboceptor) against this disease. Centuries before the Christian era the Chinese observed the immunity against a second attack enjoyed by those who had survived smallpox. By inoculation, i. e., artificial transfer of the smallpox virus, they endeavored to check the spread of the disease. The people of eastern countries were also accustomed to expose their children to a mild case of smallpox in order that a similar mild attack might produce immunity against the disease. These practices, however, were not without risk, as this mild disease not infrequently became a virulent one, and it was also found that the disease so produced could be spread as readily as the natural form. It was long known that milkmaids who contracted smallpox from sores on the udder of the cow were immune against smallpox. Edward Jenner in 1796 demonstrated experimentally that when the virus of cowpox is applied to the abraded skin of a human being a trivial affection, since called "vaccinia," results and that this is followed by complete or almost complete immunity to smallpox for a long period of years. Re-vaccination should be practiced after five to seven years to insure a more potent and lasting immunity.

Rabies Vaccine. The work of Jenner was purely empirical. Pasteur laid the foundation of scientific immunology in 1858, 1860, 1863. It was not until 1879 that he made the discovery that light, high and low temperature, and exposure, could so reduce the virulence of an infective agent that while its injection into an animal was practically without danger or ill effect, it could stimulate the mechanism of immunity in the host and produce a lasting protection against infection.

This fact was accidentally discovered by Pasteur when working on chicken cholera. He found on returning from an absence from his laboratory that the cultures of the chicken cholera organism with which he had been experimenting had become innocuous. The far reaching importance of this fact at once impressed him and resulted in his demonstration that a mild form of chicken cholera may be produced by using as antigen an attenuated organism, and that this mild attack would confer immunity against the severe form of the disease. On this discovery is based modern bacterin and serum therapy.

Shortly after this epoch-making discovery Pasteur (1880) startled the world by announcing that rabies resulting from mad dog bite could be prevented by vaccination. The process consists of active immunization with emulsion of the spinal cord of rabid animals (rabbits) reduced in virulence by drying for a certain length of time over caustic potash. The incubation period in rabies is comparatively long, varying from three weeks to perhaps several years, while that of the attenuated virus is relatively short, thus making it possible to administer effective vaccination after the infection of the patient by the bite of the rabid animal.

Bacterial Vaccines or Bacterins. These antigens consist of suspensions or so-called emulsions of pathogenic bacteria, modified by heating them to a temperature sufficient to destroy their viability or securing the same results by antiseptics, but not so altering them as to destroy their power of stimulating the body cells of the vaccinated individual to produce antibodies. The suspension is usually made in physiological salt solution, which should be isotonic with the blood, and they are standardized either by bacterial count or by determining the amount of bacterial products in each cubic centimeter by drying and weighing. They are administered by subcutaneous injection or intravenously, and used either for prophylaxis (antityphoid immunization), or for treatment. The blood serum of the individual subjected to a dose of bacterial vaccine manifests increased opsonic power, that is, power to prepare bacteria, of the same kind injected for ingestion and digestion by the phagocytes.

Stensitized Bacterial Vaccines. When pathogenic bacteria are treated with immune homologous serum, i. e., serum from the blood of an animal immunized against the same kind of bacteria to be used for preparing the vaccine, their viability is so reduced that they become incapable of reproduction yet still potent as antigens. Such bacteria are described as "sensitized." By this method the specific amboceptors contained in the immune serum are made to combine with the bacteria, thus preparing them for the immediate action of complement when introduced into the body of the person to be immunized. The blood serum of the individual subjected to a dose of sensitized bacterial vaccine manifests increased bacteriolytic power. According to Garbat immunity following the injection of

sensitized bacterial vaccine is largely due to increase in "bacteriolysin" rather than to increase in "opsonin."

Sensitized Killed Bacterial Cultures. These products differ from sensitized living bacterial cultures in being absolutely safe in so far as *viability* is concerned. It is believed by some that the use of living sensitized cultures may possibly cause carriers and spread disease. Until this and other important questions are answered in a satisfactory manner the U. S. Government will continue to refuse license for their commercial manufacture.

In explaining the action of sensitized vaccines, Besredka refers to the researches of Garbat and Meyer. These investigators aver that bacteria are typical cells consisting of an external protoplasmic envelope and an internal nuclear portion. When they are disrupted by the action of amboceptor and complement, the outer portion is digested and the inner portion (endotoxin) set free. Both portions are toxic; both give rise to individual immunizing substances by stimulating the tissue cells to produce them. Immunity is, therefore, partly due to the production of endotoxin and partly due to the production of bacteriolysin.

As the explanation of Garbat and Meyer resembles in some particulars the teachings of Vaughan and his associates, I wrote to Professor Vaughan in regard to sensitized vaccines, and asked further information on the subject from his viewpoint. He replied as follows:

UNIVERSITY OF MICHIGAN, ANN ARBOR, Nov. 8, 1915.

Dear Doctor Stewart:

It seems to me that the action of sensitized bacteria compared with the unsensitized bacteria is best explained by my theory. Probably it will be best to first state my theory and then see how it applies to sensitized bacteria. A protein sensitizer or anaphylactogen (called by others antigen) is a protein substance which when injected into animals causes certain body cells to produce a specific proteolytic ferment. This specific ferment digests and destroys its homologous sensitizer or the protein which has caused its development. This ferment, like all other ferments, consists of amboceptor and complement. Now let us apply this to sensitized bacteria. Bacteria, typhoid bacteria for instance, are sensitized by submitting them in vitro to immune serum. These bacteria thus are saturated with their specific amboceptors and when such sensitized bacteria are injected into an animal they are already fitted for complete digestion. In the animal the complement acts upon the prepared bacteria and their digestion is complete. So complete is their digestion that a large part of their poisonous constituents is destroyed and the animal is immunized by the nonpoisonous constituent of the sensitized bacteria. For this reason the animal treated with sensitized typhoid bacteria shows little disturbance, while on the other hand, the animal treated with unsensitized bacteria must elaborate both amboceptor and complement. This takes time, the period is longer, the digestion is less complete, more of the poison is set free, less of the poison is destroyed in the process of digestion, and consequently the life of the animal is placed in greater jeopardy. Garbat and Meyer believe that immunization is secured by the poisonous constituent or constituents of the typhoid bacillus. According to my theory, the poisonous constituent of the typhoid bacillus has nothing to do with the production of immunity or sensitization. Sensitization and immunity are induced by the nonpoisonous part of the typhoid bacillus. Subjecting the typhoid bacillus in vitro to immune serums, in other words sensitizing the bacteria in vitro, prepares the bacteria for digestion, and when introduced into the body they are digested speedily and completely, or so nearly completely that a large part of the poisonous part of the bacterial molecule is destroyed. It seems to me that if the article by Garbat and

Meyer is read with my theory in view, it is confirmatory of that theory. It has been shown by Freidberger, myself, and others, that very small amounts of the protein poison produce an elevation in temperature. Large amounts produce a depression in temperature. Sensitizing with immune serum in vitro prepares these bacteria for ready and complete digestion as soon as they are introduced into the animal body. Therefore, there is less disturbance in the animal body when sensitized bacteria are introduced than when unsensitized bacteria are given. This is the way I look at it.

I don't know whether I have made myself clear on this point or not. I know that I have been able to sensitize animals with the nonpoisonous part of typhoid bacteria. This nonpoisonous part which I have obtained has been secured by a crude way. The nonpoisonous part, which is split off by sensitizing bacteria with immune serum, is a much more efficient preparation than mine. The point that I insist upon is that the sensitizing group in the protein molecule, and this of course means the immunizing group, is not the poisonous group, but is found among the nonpoisonous groups. The poisonous group in all proteins is much the same, physiologically the same, chemically there must be fine differences, while the sensitizing group is not the same in any two kinds of proteins; hence its specificity.

I may be cranky on this subject. I think that the nomenclature of Ehrlich has been wrongly applied to sensitization and to bacterial immunity. The protein poison is not a toxin, it is a poison. It produces no antibody.

V. C. VAUGHAN.

ADVANTAGES OF SENSITIZED OVER NONSENSITIZED BACTERINS.

The following advantages of sensitized over nonsensitized bacterins are noted:

1. As a rule they produce but slight local reaction (inflammation at site of injection). This rule has its exceptions. Occasionally severe local reactions follow their injection. However, this is not as likely to occur when using the sensitized bacterin as when the nonsensitized are employed.

2. They cause no general reaction. This is the rule, but it has exceptions. General reactions are manifested by malaise, increased temperature, etc.

3. They may be given more frequently and in much larger doses than the unsensitized bacterins (every twenty-four to forty-eight hours). Occasionally persons are found who cannot digest larger doses. In such cases the dose should be decreased.

4. The immunizing effect is almost immediate (manifesting itself within from 24 to 48 hours), instead of 9 to 10 days.

5. The course of treatment for immunizing an individual against typhoid fever used by the U. S. Army is to inject 500,000,000 killed typhoid baccilli subcutaneously, to be followed 10 days later by the injection of the second dose (10 million killed bacteria), and after another interval of 10 days by the injection of the third dose (1000 million killed bacteria). The dosage of sensitized typho-bacterin is twice as large, i. e., 1st dose 1000 million, 2d dose 2000 million, 3d dose 2000 million. Intervals 6 to 7 days. In the event of a threatened epidemic the advantages in favor of a quick acting bacterin immunity against typhoid fever are not difficult to realize.

6. According to Besredka, sensitized bacteria give results in very late stages of the disease, when no response is secured from the ordinary bacterins, and even serum treatment is ineffective.[4]

7. Owing to the fact that the specific bacteriolytic amboceptor is already united to the antigen (bacteria), and therefore ready for prompt digestion by the body cells when injected it follows that the body cells are saved from the

[4]Bulletin de l'institut Pasteur, viii, 6, pp. 241-253, Mars, 1910.

effort of producing amboceptor, an effort which the body cells of a patient sick with typhoid fever may be unable to accomplish.

8. There is not the same liability of producing what is called a "negative phase"—the temporary condition sometimes following the injection of an ordinary bacterin owing to the using up of the normal opsonin in the patient's blood, the same being required to prepare the injected bacterin for phagocytosis.

PASSIVE IMMUNITY-SERUM THERAPY.

So called because the body cells of the individual undergoing immunization have no part in producing it. Active immunity is produced in some other animal, usually the horse, and the individual to be passively immunized acquires immunity by receiving injections of immune serum taken from the immunized animal. The use of diphtheria antitoxin to prevent diphtheria (prophylactic immunization), and as a curative agent in its treatment (curative immunization) illustrates the main purposes for which passive immunization is employed.

Although sufficient evidence has not yet accumulated to permit positive statements, it is believed that more than one antibody is usually present in each immune serum, and that the immunity acquired by their employment is due to several antibodies, which, acting together, tend to overcome infection.

As stated by Kolmer[5], "From the practical standpoint, therefore, immune serums may be used to produce two main types of passive immunization, namely:

"1. *Antitoxic immunization*, due to antitoxins opposing the true extra-cellular toxins, as in diphtheria and tetanus (antitoxic immunity).

"2. *Antibacterial immunization*, due mainly to bacteriolysins and bacteriotropins (antibacterial immunity)." Serums containing these antibodies are useful in the treatment of infections due to the meningococcus, pneumococcus, streptococcus, gonococcus, etc.

I am forced to end this paper abruptly to permit its publication in the JOURNAL. It is my intent to continue the subject in subsequent papers.

STABILITY OF PREPARATIONS CONTAINING YELLOW PHOSPHORUS.*

H. ENGELHARDT AND O. E. WINTERS.

In our previous paper entitled the "Estimation of Yellow Phosphorus"[1] read at the Detroit meeting we announced our intention to substitute other copper salts for copper nitrate, which we used in the process suggested.

The tabulated results of this work show quite plainly that no advantage is gained by the use of other salts of copper over the nitrate.

With the exception of those made with copper chloride, the results obtained when employing other copper salts were fairly uniform. Copper chloride is the least appropriate for this purpose, due to the apparent decomposition of the

[5] A Practical Text-book of Infection, Immunity and Specific Therapy, by John Kolmer, M.D., Dr. P.H., Phila. W. B. Saunders Co., 1915.

* Read in Scientific Section A. Ph. A., San Francisco meeting.

[1] Journal A. Ph. A., Apr. 1915, p. 451.

copper compounds, especially copper phosphide, which takes place. Again we have found that the direct copper nitrate method as outlined in our previous paper gives trustworthy results. We also found that it is advisable and important to collect the ammonium-magnesium phosphate in a Gooch crucible, because less wash-liquid is required to remove the excess of magnesia mixture and the danger of dissolving the ammonium-magnesium phosphate is consequently practically eliminated.

APPLICATION OF VARIOUS COPPER SALTS.

2.837 gms. of dried phosphorus was dissolved in 250 cc. of air-free chloroform and 10 cc. of this solution, equal to 0.1135 gms. of phosphorus, was treated with copper nitrate solution directly. The following results were obtained:

.392 gm. $Mg_2P_2O_7$=96.45 per cent of the theoretical amount.
.393 " " =96.7 " " " " "
.400 " " =99.51 " " " " "

The same quantity of the chloroformic phosphorus solution was then treated with copper nitrate solution, the copper phosphide was filtered as outlined in our previous paper and both the nonoxidized phosphorus and the oxidation products were estimated with the following results.

Magnesium pyrophosphate from phosphide	*Magnesium pyrophosphate from filtrate*
.268 gm.=65.94 per cent phosphorus	.117 gm.=28.78 per cent phosphorus
.255 gm.=62.73 per cent phosphorus	.136 gm.=33.46 per cent phosphorus
or combined 94.72 per cent	
96.19 per cent	

The 10 per cent copper nitrate solution was then replaced by a 5 per cent *copper acetate* solution and the following results obtained which agree fairly well with those obtained by the copper nitrate method.

Magnesium pyrophosphate from phosphide	Or combined
.258 gm. = 63.48 per cent phosphorus	93.5 per cent
.257 gm. = 63.23 per cent phosphorus	98.15 per cent
.252 gm. = 62.1 per cent phosphorus	97.72 per cent
Magnesium pyrophosphate from filtrate	
.122 gm. = 30.02 per cent phosphorus	
.142 gm. = 34.92 per cent phosphorus	
.145 gm. = 35.62 per cent phosphorus	

When substituting the 10 percent copper nitrate solution by a 10 percent copper sulphate solution the results obtained showed that a greater oxidation of the copper phosphide takes place during the process than when using the nitrate or acetate.

Magnesium pyrophosphate from phosphide	
.199 gm. = 49.0 per cent phosphorus	
.202 gm. = 49.7 per cent phosphorus	
.215 gm. = 52.9 per cent phosphorus	Or combined
Magnesium pyrophosphate from filtrate	96.4 per cent phosphorus
.192 gm. = 47.4 per cent phosphorus	94.5 per cent phosphorus
.182 gm. = 44.8 per cent phosphorus	97.3 per cent phosphorus
.180 gm. = 44.4 per cent phosphorus	

The oxidation was still more marked when using a 10 percent copper chloride solution.

Magnesium pyrophosphate from phosphide		
.189 gm. = 46.5	per cent phosphorus	
.139 gm. = 34.2	per cent phosphorus	
.054 gm. = 13.3	per cent phosphorus	Or combined 92.4 per cent phosphorus
Magnesium pyrophosphate from filtrate		
.187 gm. = 45.9	per cent phosphorus	84.6 per cent phosphorus
.205 gm. = 50.4	per cent phosphorus	101.3 per cent phosphorus
.359 gm. = 88.0	per cent phosphorus	

These results are absolutely worthless. As yet we have not been able to find out the cause of these discrepancies. We have made several sets of assays under exactly the same conditions but the results obtained were as varying as those reported. When using copper salts other than the chloride the precipitate of the copper phosphide has a black color, while the chloride produces a precipitate which at first is black but which soon changes to brown, the color of copper phosphide generally described in the text-books on chemistry.

STABILITY OF SPIRIT OF PHOSPHORUS.

Since the results obtained with copper sulphate and copper chloride were unsatisfactory, we used only the nitrate and acetate in the estimation of the spirit. The estimation was carried out as given in our previous paper, using 10 cc. of the spirit for the estimation.

The following results were obtained:

Copper nitrate	0.0505	gm.	$Mg_2P_2O_7$=0.141	per cent	phosphorus.
" "	0.050	"	" =0.1395	"	"
" "	0.0508	"	" =0.142	"	"
Copper acetate	0.049	"	" =0.1368	"	"
" "	0.049	"	" =0.1368	"	"

In another series of experiments the oxidation products were not removed by shaking out with water, 10 cc. of the spirit were simply mixed with 25 cc. of chloroform, 40 cc. of water and 20 cc. of copper nitrate and copper acetate solution respectively. We thus obtained the following results:

Copper nitrate	0.065	gm.	$Mg_2P_2O_7$=0.183	per cent	phosphorus.
" "	0.068	"	" =0.19	"	"
" "	0.068	"	" =0.19	"	"
" "	0.0676	"	" =0.189	"	"
			Average 0.188		
Copper acetate	0.068	gm.	$Mg_2P_2O_7$=0.19	per cent	phosphorus.
" "	0.066	"	" =0.184	"	"
" "	0.066	"	" =0.19	"	"
" "	0.069	"	" =0.196	"	"
			Average 0.190		

The results show that about 25 percent of oxidation products are formed when dissolving the phosphorus in the alcohol.

It may be stated that the spirit under examination was prepared with ordinary 95 percent alcohol, the boiling being continued for 12 hours. Upon standing the spirit became cloudy very rapidly and a yellow precipitate was formed.

When applying the copper nitrate method on the same sample of spirit kept at ordinary temperature in small, completely filled bottles at intervals of one month the following results were obtained:

Date of Assay, September 26, 1914.

.0505 gm. $Mg_2P_2O_7$=0.1409 per cent elementary phosphorus.
.0500 " " =0.1395 " " "
.0508 " " =0.1418 " " "
.0650 " " =0.1813 per cent total phosphorus estimated directly.
.0680 " " =0.1897 " " " "
.0680 " " =0.1897 " " " "
0676 " " =0.1886 " " " "

Practically no change within one month.

October 26, 1914

Elementary Phosphorus					*Oxidation Products*				
.0530	gm.	$Mg_2P_2O_7$	0.1479	per cent	.0106	gm.	$Mg_2P_2O_7$	.0296	per cent
.050	"	"	0.1395	"	.0086	"	"	.0240	"

Estimated Directly

.063	gm.	$Mg_2P_2O_7$	0.1758	per cent					
.058	"	"	0.1618	"					

November 23, 1914

.052	gm.	$Mg_2P_2O_7$	0.1415	per cent	.007	gm.	$Mg_2P_2O_7$	.0195	per cent
.053	"	"	0.1479	"	.006	"	"	.0167	"
.0464	"	"	0.1294	"	.005	"	"	.0139	"
.0460	"	"	0.1283	"	.004	"	"	.0112	"

December 29, 1914

.0477	gm.	$Mg_2P_2O_7$	0.1327	per cent	.0041	gm.	$Mg_2P_2O_7$	.0117	per cent
.049	"	"	0.1367	"	.004	"	"	.0112	"

January 25, 1915

.0476	gm.	$Mg_2P_2O_7$	0.1328	per cent	.004	gm.	$Mg_2P_2O_7$	.0112	per cent
.0486	"	"	0.1356	"	.003	"	"	.0084	"

February 28, 1915

.0468	gm.	$Mg_2P_2O_7$	0.1307	per cent	.0060	gm.	$Mg_2P_2O_7$	.016	per cent
.0472	"	"	0.1318	"	.0070	"	"	.0195	"

March 29, 1915

.0472	gm.	$Mg_2P_2O_7$	0.1318	per cent	.012	gm.	$Mg_2P_2O_7$	.0335	per cent
.0480	"	"	0.1340	"					

May 3, 1915

.048	gm.	$Mg_2P_2O_7$	0.134	per cent	.0105	gm.	$Mg_2P_2O_7$	.0293	per cent
.048	"	"	0.134	"	.0105	"	"	.0293	"

June 7, 1915

.047	gm.	$Mg_2P_2O_7$	0.1312	per cent	.004	gm.	$Mg_2P_2O_7$	.0112	per cent
.046	"	"	0.1284	"	.005	"	"	.0139	"

In order to find out whether or not spirit of phosphorus when kept in completely filled bottles in a refrigerator retains the elementary phosphorus still better the following experiments were undertaken:

October 27, 1914

Elementary Phosphorus					*Oxidation Products*				
.049	gm.	$Mg_2P_2O_7$	0.1368	per cent	.009	gm.	$Mg_2P_2O_7$	.0251	per cent
.048	"	"	0.1339	"	.0064	"	"	.0179	"

Total phosphorus .056 gm. $Mg_2P_2O_7$ .1536 per cent phosphorus

November 24, 1914

.041	gm.	$Mg_2P_2O_7$	.1144	per cent	.003	gm.	$Mg_2P_2O_7$	.0084	per cent
.044	"	"	.1221	"	.007	"	"	.0195	"
.042	"	"	.1171	"	.004	"	"	.0112	"

December 29, 1914

Elementary Phosphorus					*Oxidation Products*				
.035	gm.	$Mg_2P_2O_7$	.0977	per cent	.005	gm.	$Mg_2P_2O_7$	.0139	per cent
.037	"	"	.1032	"	.005	"	"	.0139	"
.037	"	"	.1032	"	.005	"	"	.0139	"
.035	"	"	.0977	"	.0044	"	"	.0132	"

January 26, 1915

.033	gm.	$Mg_2P_2O_7$	.0921	per cent	.006	gm.	$Mg_2P_2O_7$	.0167	per cent
.033	"	"	.0921	"	.004	"	"	.0112	"
.0332	"	"	.0927	"	.004	"	"	.0112	"
.033	"	"	.0921	"	.004	"	"	.0112	"

February 3, 1915

.034	gm.	$Mg_2P_2O_7$	.0949	per cent	.015	gm.	$Mg_2P_2O_7$	.0293	per cent
.033	"	"	.0921	"	.0115	"	"	.0321	"
.033	"	"	.0921	"	.006	"	"	.0167	"
.034	"	"	.0949	"	.008	"	"	.0223	"

March 30, 1915

.033	gm.	$Mg_2P_2O_7$	0.921	per cent	.009	gm.	$Mg_2P_2O_7$	.0251	per cent
.033	"	"	0.921	"	.010	"	"	.0279	"
.0364	"	"	0.1016	"	.007	"	"	.0195	"

May 7, 1915

.047	gm.	$Mg_2P_2O_7$	.131	per cent	.0055	gm.	$Mg_2P_2O_7$	.0154	per cent
.046	"	"	.128	"	.0040	"	"	.0111	"
.047	"	"	.131	"	.006	"	"	.0167	"
.046	"	"	.131	"	.005	"	"	.0130	"

June 11, 1915

.029	gm.	$Mg_2P_2O_7$	.0810	per cent	.006	gm.	$Mg_2P_2O_7$	.0167	per cent
.028	"	"	.0782	"	.005	"	"	.0130	"
.031	"	"	.0866	"	.004	"	"	.0111	"
.030	"	"	.0838	"	.004	"	"	.0111	"

These results show that spirit of phosphorus when kept in completely filled bottles, protected from light, either at ordinary temperature or in a refrigerator keeps fairly well; they also show that at times a somewhat more rapid deterioration takes place, as explained by comparing results obtained in February and March with those obtained in May. We are at present not in a position to say to what causes such a deterioration can be attributed.

That, however, spirit of phosphorus should be kept in completely filled, preferably amber, bottles is shown by the following experiment. About 300 cc. of spirit was left in a 2500 cc. flint bottle. The spirit which was at first slightly turbid, soon became transparent and after the lapse of about three weeks all the elementary phosphorus had disappeared or in other words had been oxidized.

STABILITY OF PHOSPHORUS PILLS.

The phosphorus pills used for the examination were made from a paste calculated to contain 10 percent of phosphorus and this paste when assayed according to the following process gave the results indicated below.

About .6 gm. of the paste was mixed in a bottle filled with carbonic acid gas with 20 cc. of water and 50 cc. of chloroform both air-free and the mixture

was shaken for about one-half hour. Tragacanth was then added, the mixture shaken again and, after clearing, an aliquot part of the chloroformic solution was treated with copper nitrate in the regular way. The following results were obtained:

.688	gm.	of paste	gave	.245	gm.	$Mg_2P_2O_7$	=9.94	per cent
.418	"	"	"	.145	"	"	=9.9	"
.562	"	"	"	.198	"	"	=9.85	"
.423	"	"	"	.1466	"	"	=9.68	"

For making the pills a 10 percent excess of phosphorus paste was added to the calculated amount, in order to meet the deterioration or volatilization which occur during the manufacturing process. The pills were assayed strictly according to the process given in our previous paper.

Phosphorus Pills 1/50 gr. Coated.

Date of Assay—					
October 2, 1914	0.02024	gm.	$Mg_2P_2O_7$	101.2	per cent
	0.02110	"	"	105.5	"
	0.02116	"	"	105.8	"
November 2, 1914	0.02007	"	"	100.35	"
	0.02078	"	"	103.90	"
	0.02065	"	"	103.25	"
December 1, 1914	0.02039	"	"	101.95	"
	0.02060	"	"	103.00	"
January 7, 1915	0.01993	"	"	99.65	"
February 26, 1915	0.02031	"	"	101.55	"
	0.02038	"	"	101.90	"
March 4, 1915	0.0211	"	"	105.5	"
April 1, 1915	0.0198	"	"	99.0	"
	0.0205	"	"	102.5	"
May 11, 1915	0.0202	"	"	101.0	"
June 15, 1915	0.01946	"	"	97.3	"
	0.01969	"	"	97.45	"

Phosphorus Pills 1/50 gr. Uncoated.

Date of Assay—					
September 30, 1914	0.02073	gm.	$Mg_2P_2O_7$	103.65	per cent
	0.01957	"	"	97.85	"
November 4, 1914	0.02031	"	"	101.55	"
	0.02073	"	"	103.65	"
	0.02053	"	"	102.65	"
December 1, 1914	0.02046	"	"	102.30	"
	0.02075	"	"	103.75	"
January 6, 1915	0.02013	"	"	100.65	"
	0.02059	"	"	102.95	"
February 26, 1915	0.2005	"	"	100.25	"
March 4, 1915	0.019	"	"	98.5	"
	0.0205	"	"	102.5	"
April 1, 1915	0.0199	"	"	99.5	"
	0.0206	"	"	103.00	"
May 11, 1915	0.0199	"	"	99.5	"
June 15, 1915	0.01964	"	"	98.2	"

Phosphorus Pills 1/100. Coated.

Date of Assay—					
October 2, 1914	0.01054	gm.	$Mg_2P_2O_7$	105.4	per cent
	0.01043	"	"	104.3	"
November 2, 1914	0.00949	"	"	94.9	"
	0.00942	"	"	94.2	"
	0.01020	"	"	102.0	"
December 1, 1914	0.01005	"	"	100.0	"
	0.009908	"	"	99.08	"
January 6, 1915	0.01014	"	"	101.4	"
	0.01002	"	"	100.2	"
June 15, 1915	0.00978	"	"	97.8	"
	0.00997	"	"	99.7	"

Phosphorus Pills 1/100 gr. Uncoated.

Date of Assay—					
September 30, 1914	0.01009	gm.	$Mg_2P_2O_7$	100.9	per cent
	0.01036	"	"	103.6	"
November 2, 1914	0.00996	"	"	99.6	"
	0.01017	"	"	101.7	"
December 1, 1914	0.01310	"	"	103.1	"
	0.01021	"	"	102.1	"
January 6, 1915	0.01002	"	"	100.2	"
	0.01013	"	"	101.3	"
June 15, 1915	0.00956	"	"	95.6	"

Phosphorus, Nux Vomica and Damiana Pills, both plain and gelatin coated were then examined. Each pill originally contained 1/100 gr. of phosphorus. The following results were obtained:

Phosphorus, Nux Vomica and Damiana Pills. Uncoated.

Date of Assay—					
December 4, 1914	.008926	gm.	$Mg_2P_2O_7$	89.26	per cent
	.009007	"	"	90.07	"
June 16, 1915	.00843	"	"	84.3	"
	.00832	"	"	83.2	"

Phosphorus, Nux Vomica and Damiana Pills. Coated.

Date of Assay—					
November 11, 1914	.009342	gm.	$Mg_2P_2O_7$	93.42	per cent
	.009491	"	"	94.91	"
December 4, 1914	.009084	"	"	90.84	"
June 16, 1915	.00808	"	"	80.8	"
	.00817	"	"	81.7	"

Although 10 per cent more phosphorus had been added to the pill mass than theoretically required, the pills assayed below the required amount of phosphorus, thus showing that a part of the phosphorus is oxidized during the manufacturing process. It is further shown that a portion of the phosphorus is oxidized on keeping the pills, no matter whether they are coated or uncoated.

The assay of the pills was carried out according to the process outlined in our previous paper with the exception that the shaking of the chloroformic phosphorus solution with the copper nitrate solution was continued for three hours or until the green color of the mixture had acquired a brownish tint due to the formation of copper phosphide. We have found that certain vegetable

matters retard the formation of copper phosphide considerably and unless all the phosphorus has been converted into phosphide the phosphorus cannot be converted into its oxidation products by hydrogen peroxide but will remain as such and appear in the bottle in the form of white fumes.

We also had this experience when determining:

STABILITY OF ELIXIR OF PHOSPHORUS, NUX VOMICA AND DAMIANA.

The elixir was prepared from a spirit of phosphorus which assayed 0.1224 per cent of phosphorus. 280 cc. of this spirit was mixed with 720 cc. of elixir of nux vomica and damiana. The elixir thus prepared should contain theoretically 0.035 per cent of phosphorus, viz.: four times the amount required by the product generally found on the market. The elixir was kept in small completely filled amber bottles, protected from light and at ordinary temperature.

Assays of the Elixir.

Date of Assay—					
November 17, 1914	.026	gm.	$Mg_2P_2O_7$	.02905	per cent
	.024	"	"	.02681	"
	.026	"	"	.02905	"
December 5, 1914	.024	"	"	.02681	"
	.025	"	"	.02794	"
January 5, 1915	.021	"	"	.02346	"
	.0214	"	"	.02391	"
January 30, 1915	.020	"	"	.02235	"
	.021	"	"	.02346	"
March 15, 1915	.017	"	"	.01864	"
	.021	"	"	.02346	"
April 1, 1915	.017	"	"	.01864	"
May 10, 1915	.011	"	"	.01228	"
	.0118	"	"	.01264	"
June 14, 1915	.008	"	"	.0892	"
	.010	"	"	.01116	"

These results show that elixir of phosphorus, nux vomica, and damiana keeps well for about five months, after which time a rather rapid dissipation of the yellow phosphorus takes place.

In summing up we find that preparations containing yellow phosphorus keep fairly well under ordinary conditions. Only those preparations which contain vegetable matter are easily decomposed.

RESEARCH LABORATORY OF SHARP & DOHME.

REMARKS AND DISCUSSIONS.

Dr. Turner: I merely wish to compliment Dr. Engelhardt on his paper and to point out that the question of determining phosphorus in compounds is a very complicated one. Now we have something which will really enable us to determine the amount of phosphorus in these preparations.

Dr. Dohme: I would like to ask Dr. Engelhardt to what extent the results agree with one another in the various determinations.

Dr. Engelhardt: The experiments were made in duplicate and triplicate and the results vary, I should judge, within the limit of 3 per cent. or 5 per cent. Often the variation was even less. In my opinion the results are particularly satisfactory because with other processes the results obtained were far from being concordant, and in some cases, were absolutely unreliable. I believe we have tried all processes recommended up to the present time

for estimating yellow phosphorus in pharmaceutical preparations and especially the process requiring the destruction of the organic matter and oxidation of the phosphorus by the Kjeldahl method. The fact that the results obtained by this method were not at all concordant may be due to a too rapid oxidation of the phosphorus which manifests itself at times by small explosions.

We have found that with the method outlined by us we can get uniform and satisfactory results and when you get results which remain within the 5 per cent limit and taking even the personal equation into consideration within the 8 per cent limit you should be very well satisfied.

A Member: Are these phosphorus compounds, that is, the therapeutic products, pills, etc., used as extensively as they were some years ago? What is the demand?

Dr. Engelhardt: My impression is that we still make rather large quantities of pharmaceutical preparations containing phosphorus, especially those containing in addition to phosphorus, extract of nux vomica and extract of damiana. On account of the instability of phosphorus in elixir of phosphorus, nux vomica and damiana we have quite recently replaced the phosphorus by glycerophosphates. Such a preparation is apparently equally as effective, for we continue to have a great demand for it.

A Member: It is perhaps not germane to the subject, but I should like to ask whether there is any real evidence as to the therapeutic value of either elixir of phosphorus or glycerophosphates?

Dr. Engelhardt: You had better ask the American Medical Association. They claim not.

SEMPERVIRINE FROM GELSEMIUM ROOT*.

A. E. STEVENSON AND L. E. SAYRE.

The authors give a method of separating "Sempervirine" from a mixture of the combined alkaloids of gelsemium root, by means of converting the alkaloid into the nitrate which is quite insoluble in water and practically insoluble in solution containing sodium nitrate. Methods of preparing the free alkaloid and some of its salts, a description of these products, and their reactions with the usual alkaloidal reagents are given. In the second part of the paper the authors describe gelseminine which, they claim, consists of at least two alkaloids. They further suggest a method for separation of the various alkaloids of the root and the results of some preliminary physiological experiments carried out with sempervirine, which have shown that the salt apparently has no *immediate* toxic effect, but its definite toxicity is stated.—(Editor.)

At previous annual meetings of this Association, the progress in the investigation of Gelsemium Root has been contributed. In former papers, the various contributions of different authors have been referred to and, at this time, it is unnecessary to repeat the same. It is the desire of the present authors to record in the proceedings of this Association any results of this investigation.

In the present paper, we desire to report further progress in the separation of the various alkaloids of this interesting drug and will confine ourselves very briefly to the method of separation of the alkaloid sempervirine from the total alkaloids of Gelsemium. This report, taken in connection with former

*Presented to Scientific Section, A. Ph. A., San Francisco.

reports, will reveal consecutive steps which have been taken in this investigation.

A.—The crude mixed alkaloids of Gelsemium weighing 25 grams were dissolved in chloroform and extracted with one percent citric acid until practically all the alkaloid was removed from the extraneous material. The acid liquid was made alkaline with ammonia water and completely extracted with chloroform. The alkaloid was then again extracted from the chloroform using one percent hydrochloric acid. Each successive extraction was tested by adding a few drops of saturated solution of sodium nitrate which precipitates the sempervirine. When no further precipitate was obtained the extracts previously obtained were combined and a saturated solution of sodium nitrate added, drop by drop with stirring, until no further precipitate was obtained. This precipitate consisted of sempervirine nitrate. The alkaloid, as stated in previous papers, forms a nitrate, quite insoluble in water and practically insoluble in solution containing sodium nitrate.

B.—Purification of the Sempervirine Nitrate. The sempervirine nitrate was filtered off and washed free from mother liquor with a weak solution of $NaNO_3$ and the $NaNO_3$ solution removed by washing drop by drop with distilled water. The sempervirine nitrate was washed with distilled water into a beaker and heated on a boiling water bath until it dissolved. The solution was filtered off and the nitrate reprecipitated by adding a few drops of a saturated solution of $NaNO_3$. It was then filtered off and washed as before with weak $NaNO_3$ solution. This process of solution and reprecipitation was repeated three or four times. Finally the sempervirine nitrate was dried on porous plate and recrystallized from hot alcohol from which it separated in yellow needle shaped crystals.

C.—Preparation of the Free Alkaloid. The nitrate was dissolved in hot water, the solution made alkaline with NH_4OH and the alkaloid extracted with $CHCl_3$. The major portion of the $CHCl_3$ was distilled off. On allowing the residue to cool the alkaloid crystallized out in reddish brown needles.

D.—The Hydrochloride, Preparation of. The hydrochloride was prepared from the free alkaloid in a manner analogous to the preparation of the nitrate, the alkaloid being dissolved in one percent HCl and precipitated out by adding saturated solution of NaCl. It was dried on porous plate and separated from the NaCl present by dissolving in alcohol in which it is quite soluble.

It may be obtained in a crystalline form by dissolving in a small amount of absolute alcohol, heating the alcohol solution to boiling and adding 4 or 5 volumes of hot $CHCl_3$. On cooling and standing for some time, the hydrochloride separates out in yellow microscopical needles. The hydrochloride dissolves readily in alcohol and water. It is very slightly soluble in chloroform.

E.—Some Characteristics of the Alkaloid and Its Salts. The free alkaloid, as stated before, crystallizes from chloroform in reddish-brown needles. Its chloroformic solution is very dark in color, ranging from yellow, in very dilute solutions, to a dark reddish-brown, in saturated solutions. It is somewhat soluble in alcohol, very slightly soluble in water, almost insoluble in ether, benzol, and petroleum ether.

It dissolves in concentrated H_2SO_4 with reddish-brown color, the solution giving no change in color on adding a crystal of $K_2Cr_2O_7$. When heated, it fused together at about 220°, but did not melt even when heated to 280°, above which temperature it was not heated. At this temperature, it was in the form of a black mass.

The hydrochloride fused together at 310°, but was not completely melted at this temperature. It was not heated higher than this.

An aqueous solution of the hydrochloride gives the following reactions:

With $NaNO_3$ solution, a yellowish precipitate.
With Mayer's Reagent, a yellow precipitate.
With Wagner's Reagent, a reddish-brown precipitate.
With Tannic Acid solution, a yellowish precipitate.
With Picric Acid solution, a yellow precipitate.

Yellow amorphous precipitates with potassium ferrocyanide and potassium ferricyanide solutions.

With $KCrO_4$ solution, a yellow precipitate.
With platinic chloride, a yellowish-white precipitate.

The hydrochloride may be precipitated from its solution by adding a small amount of sodium chloride solution.

The solution of hydrochloride gives no precipitate with phosphoric, sulphuric, oxalic, tartaric or citric acids.

The percentage of sempervirine in gelsemium is small. About 0.8 gram was obtained from the 25 grams of alkaloidal material which represented the alkaloids from 25 pounds of the drug.

F.—The Filtrate from the Sempervirine Nitrate, together with further acid washings of the $CHCl_3$ solution which did not give a precipitate with $NaNO_3$, were extracted with several successive portions of benzol, using in all about three times the volume of the acid solution. This removed the greater part of the gelsemic acid. The acid liquid was then extracted with several successive portions of $CHCl_3$, using in all about four times the volume of the acid liquid. The chloroform removed the remainder of the gelsemic acid, the remainder of the sempervirine as the hydrochloride and also would undoubtedly remove at least traces of the hydrochlorides of all other alkaloids present, since such a large amount of $CHCl_3$ was used.

G.—The Chloroformic Solution. The chloroformic solution was filtered and the greater part of the $CHCl_3$ distilled off. The remainder was shaken with several small portions of water, until the hydrochlorides of the alkaloids were removed. The residual $CHCl_3$ was rejected. The aqueous solution was evaporated with a small amount of sand (sand being added to facilitate subsequent extraction) at a low temperature to dryness, the residue transferred to a flask and extracted with several successive portions of acetone. Sempervirine hydrochloride, which had not been precipitated with $NaNO_3$, is left with the sand from which it was extracted with alcohol.

The acetone solution was evaporated to dryness at a low temperature and the residue dissolved in water. (Not all of it went into solution.) The filtered solution was treated, drop by drop, with a saturated solution of NaCl. A small quantity of a yellow alkaloidal precipitate was obtained at first, the precipitate gradually becoming whiter. The first portion of the precipitate

was filtered off and the succeeding precipitate produced by NaCl was collected separately. This latter precipitate was dried on porous plate and dissolved in alcohol from which it separated in crystalline form. The crystals were almost colorless, slowly soluble in water and melted at 282° with decomposition.

A small amount of alkaloid hydrochloride remained in solution after saturating with NaCl. The solution was made alkaline with NH_4OH and the alkaloid extracted with $CHCl_3$. On evaporating the $CHCl_3$, a bitter amorphous residue with a pyridine-like odor was obtained. All of these alkaloidal products obtained here were very small in quantity.

H.—Acid Solution which had been Extracted with Benzol and $CHCl_3$. This acid solution was exactly neutralized to litmus with NaOH solution and evaporated at a low temperature. The dry residue was extracted with alcohol leaving behind NaCl and gelsemine hydrochloride, while a small quantity of gelsemine hydrochoride, and all of the gelseminine hydrochloride was dissolved. To remove as much as possible of the gelsemine hydrochloride, part of the alcohol was removed by distillation and the concentrated solution allowed to stand for a few days when a small amount of gelsemine hydrochloride separated out. The solution was filtered off and evaporated with sand at a low temperature. The residue was transferred to a flask and extracted with several successive portions of acetone. A small amount of alkaloidal hydrochloride remained in residue and was not extracted by the acetone.

This residue was dissolved with alcohol and, on evaporation of the alcohol, gave a crystalline hydrochloride. The hydrochloride was dissolved in water and the solution filtered. To the filtrate a saturated solution of NaCl was added which gave a small amount of yellow precipitate. This precipitate was not examined further. On adding more NaCl solution and even after saturating with NaCl, there was no further precipitate, but the hydrochloride of an alkaloid remained in solution. This was precipitated with NH_4OH, the precipitate collected, washed with water and dried. It was redissolved in alcohol, but did not separate in a crystalline form (labeled Alk. A.).

I.—Gelseminine. The acetone solution obtained in "H" was evaporated, the residue dissolved in water and the solution filtered. On adding to the solution a saturated solution of NaCl, there was produced with a small amount of NaCl solution a dark colored precipitate, while on adding more NaCl solution to the filtrate from this a further lighter colored precipitate was formed. After saturating with NaCl, there still remained some alkaloidal hydrochloride in the solution (precipitates labeled, first, *Precipitate with NaCl* and, second, *Precipitate with NaCl*, respectively).

It seems that gelseminine must consist of at least two alkaloids. This is indicated First, by the fact that the hydrochloride of one is more easily salted out from its solution than that of the other, the hydrochloride first separating out being much darker in color than that separated on further addition of NaCl solution. Second, if the free alkaloid be dissolved in a small amount of alcohol and ether* added, a very dark colored alkaloid is precipitated out

*The ether solution corresponds to what we have employed in physiological tests as gelseminine.

while one much lighter in color remains in solution. Neither of these two methods of fractional precipitation gives a sharp separation into two constituents and it could probably only be determined by an ultimate analysis of the two products or by comparison of physiological effects whether these are really two different products. The physiological method would apparently be the better test to use since it would require less material and less work.

SUGGESTED METHOD FOR SEPARATION OF ALKALOIDS OF GELSEMIUM.

A.—Extract Gelsemium with 90 percent alcohol. Evaporate at a low temperature. Add water to precipitate resinous matter and filter. Wash residue with distilled water. Make the combined filtrate and washings alkaline with NH_4OH and extract completely with $CHCl_3$. Filter the combined $CHCl_3$ extracts and distil off the greater part of the $CHCl_3$. Extract the alkaloid from $CHCl_3$ residue with one percent HCl. To the acid washings add a saturated solution of $NaNO_3$ until no further precipitate is formed, avoiding an excess of $NaNO_3$.

NOTES—The saturated solution of $NaNO_3$ need not be added to the whole of the acid washings. Each successive acid washing may be tested with $NaNO_3$ solution until a washing is obtained which does not give a precipitate with $NaNO_3$. The $NaNO_3$ solution need then be added only to the combined washings obtained previous to this washing which does not give a precipitate with $NaNO_3$ solution.

B.—(1) *Purification of the Sempervirine Nitrate.* Wash the nitrate on the filter paper with a 5 percent solution of $NaNO_3$ until free from the mother liquor. Wash the precipitate then drop by drop with distilled water until practically free from $NaNO_3$ solution, rejecting the first portions of the washings, but collecting the succeeding portions. (This collection of succeeding portions is necessary since, as soon as the greater part of the $NaNO_3$ solution is removed, the sempervirine nitrate dissolves to a slight extent). When washed free from $NaNO_3$, transfer the sempervirine nitrate to a beaker and heat with distilled water on a boiling water bath until solution is effected. Filter, add the portion of the washings collected above, and also a few drops of a saturated solution of $NaNO_3$. Filter off the precipitated sempervirine nitrate and proceed as before. Repeat this three or four times. Finally dry the sempervirine nitrate on porous plate and then recrystallize from hot alcohol.

(2) *Preparation of Free Alkaloid from Nitrate.* Dissolve the nitrate in hot water and add NH_4OH to the solution. Extract the alkaloid with $CHCl_3$. Distil off the major portion of the $CHCl_3$ and allow to crystallize.

(3) *Preparation of Hydrochloride from the Alkaloid.* Dissolve the free alkaloid in one percent HCl, filter and add a saturated solution of NaCl. Proceed as under B (1) except that an NaCl solution is used instead of an $NaNO_3$ solution.

C.—Proceed with the extraction as directed under A until the alkaloids are extracted. Combine these washings with the filtrate from the sempervirine nitrate and extract with several portions of benzol, using in all a quantity of benzol equal to about three times the volume of the acid washings. This removes the greater part of the gelsemic acid. Distil off benzol to get acid. Then extract the acid liquid with several portions of $CHCl_3$ using in all

three or four times the volume of the former. This will remove the remainder of the sempervirine as the hydrochloride, together with some other alkaloidal material, also any remaining gelsemic acid. Distil off the greater part of the $CHCl_3$ and shake the residue with several portions of distilled water. This will transfer the hydrochlorides of the alkaloids to the aqueous liquid. Mix the combined aqueous extracts with some sand and evaporate at a low temperature. Extract the residue with acetone. Sempervirine hydrochloride is left behind with the sand from which it may be extracted with alcohol.

The acetone solution may be further treated as above.

D.—The acid liquid which has been extracted with benzol and $CHCl_3$ is made just neutral with NaOH and evaporated to dryness at a low temperature. The residue is treated with alcohol in small amounts which leaves behind NaCl and gelsemine hydrochloride. In solution we have a small amount of gelsemine hydrochloride together with gelseminine hydrochloride and any other alcohol soluble hydrochlorides. This alcoholic solution is evaporated to a small volume and allowed to stand for some time when the major portion of the gelsemine hydrochloride will separate out. Filter, mix the filtrate with sand and evaporate at a low temperature. Extract the residue with acetone. The so-called gelseminine hydrochloride goes into solution while a small amount of alkaloidal material remains in the sand from which it may be extracted with alcohol.

Physiological Test: Thus far no complete pharmacological data has been obtained concerning this alkaloid. It may be stated, however, that 1 cc. of the solution of the hydrochloride containing 0.001 gm. of the salt killed a guinea pig weighing 90 gms. in 48 hours. A mouse weighing about 20 gms. with the same dose died in the same time, the salt having no *immediate* toxic effect.

NOTE: For the crude material containing the mixed alkaloids we are indebted to Messrs. Eli Lilly and Company and for crude and authentic material in working up former papers we are indebted to J. U. Lloyd, Parke, Davis and Company and H. K. Mulford Company. For their generous supply of material we desire to express our thanks.

Toxicity of Sempervirine: A report from the pharmacological laboratory of Parke, Davis & Co., gives the toxicity of Sempervirine as Minimum Lethal Dose = 0.00014 gm. per gram weight of frog. For this report the writer is indebted to Dr. E. M. Houghton.

LEUCOCYTIC EXTRACT—ITS PREPARATION AND USES.*

ARTHUR R. MEINHARD.

It is now a well established fact that one of the chief forms of protection of the animal body to bacterial invasion is through the action of certain of the white blood cells or the so-called phagocytic cells. These cells, which are easily able to wander through the walls of the blood vessels, are drawn by positive chemotactic action to the infected area and act by ingesting the trouble causing bacteria, destroying them and neutralizing their poisons. It is the purpose of this paper to dwell especially upon the nature of these poison neutralizing sub-

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stances in the leucocytes, methods whereby they can be obtained from the lower animals for use in human infections, and their use in medicine.

Bacteria may be divided into two general classes, according to their poison producing powers; first, those which secrete soluble toxins of which the tetanus and diphtheria bacilli are examples, and second, those that do not secrete soluble toxins in which the poison or endotoxin is more or less fixed to the bacterial body. Examples of these are the pneumococcus, meningococcus, and typhoid bacillus.

Curative sera are easily obtained for the first of these two classes of bacteria by the injection into animals of graduated amounts of toxin which results in the formation in the blood of the immunized animal of an anti-toxin. In this way are procured tetanus and diphtheria anti-toxin.

The production of an anti-toxin for this second group of bacteria has not met with any success. The injection of these endo-toxins into an animal results not in the production of an anti-toxin but in the production of bactericidal and bacteriolytic substances.

Immune sera have been prepared for the treatment of streptococcus and pneumococcus infections, but the action of these sera is probably due to the bactericidal powers of the serum and to an increase of immue bodies, the so-called opsonins of Wright or the bacteriotropins which may or may not be the same immune body. These bodies attach themselves to the invading bacteria and render them more susceptible to the action of the leucocytes, and not to anti-toxins in the serum. The use of these sera has not met with as great success as has the use of anti-toxins.

As mentioned above, one method of action of the leucocytes on the bacterial body is through the preparation of the bacteria by the opsonins for ingestion by the leucocytes. The amount of this immune body in the serum controls the extent to which the bacteria are taken up by the leucocytes, destroyed, and their contained poisons neutralized by the ferment termed by Petterson[1] endolysin.

Hiss[2] however speaks of another form of leucocytic action upon bacteria which is independent of the amount of opsonin in the serum. There is a gradual depression of the phagocytic atcion of the leucocytes up to the height of the infection, and then an increase in action as the infection terminates. It was with this theory in view that Hiss[3] made the following statement: "In many diseases we are dealing probably with an immunity a large part of whose mechanism is individually cellular, not only in the sense of phagocystosis and digestion but in the neutralization of poisons given rise to by the disintegration of the bacteria, a mechanism in which the protecting cells must intervene and unaided by bodies in the plasma, neutralize within themselves the poisonous products of the invading microörganisms."

With this hypothesis in view Hiss[4] and later Hiss and Zinsser[5] undertook a series of experiments to see if they could obtain suitable extracts of leucocytes containing these neutralizing bodies in solution for the treatment of various infections, and to study the action of these leucocytic extracts upon different bacteria. Theoretically, such extracts if containing this poison neutralizing substace or endolysin in solution, should when injected into the bodies of human beings or other animals rapidly diffuse through the blood stream and neutralize the toxins or other poisonous substances, in this way com-

ing to the aid of and relieving the leucocytes for the time being and allowing them to form new endolysins within themselves.

The method finally used by Hiss after much experiment for obtaining leucocytic extracts was as follows and is much the same method as is in use today. Rabbits of about 2000 grammes weight were tied down, the thoracic region shaved and sterilized and ten cubic centimeters of aleuronat mixture injected into each pleural cavity, between the intercostal spaces, care being taken to avoid puncturing the lungs. The aleuronat mixture was prepared by dissolving 3% starch and 5% aleuronat in cold meat infusion broth then boiling over a free flame for five minutes and finally filling into large test tubes and sterilizing in an autoclave. At the end of 18 to 24 hours the injected animals were killed, the pleural cavities opened, and the contained cloudy fluid consisting of serum, leucocytes and some erythrocytes, put into sterile centrifuge tubes and centrifuged at high speed until the supernatant serum was clear and then this serum was poured off. The leucocytes were then extracted in distilled water in an incubator for six or eight hours, then the extract examined bacteriologically for sterility and if sterile was used.

The first experiments of Hiss were on rabbits injected with large doses of staphylococcus. That the strain used was virulent was shown by the death in every case of the animals used as controls, while the other animals which were given small doses of leucocytic extract at intervals of one to five hours after the injetcion of the bacteria either completely recovered or lived for much longer period of time than did the control animals.

Later, further experiments were carried on by Hiss and Zinsser[6] on rabbits, using pneumococcus, typhoid bacilli, and meningococcus. Here the results were about the same as mentioned above, and further, some of the animals recovered when leucocytic extract was not given until 24 hours after a dose of bacteria had been given, large enough to kill the control animals. In these experiments was shown beautifully the resulting drop in temperature after an injection of leucocytic extract showing a neutralization of the poisons.

In view of these successful experiments it was thought advisable to try leucocytic extract upon human beings. It was first tried on 24 people suffering from meningococcus infection. Most of these cases were of the severe type or came under treatment late in the disease when the infection had brought about a state of grave toxæmia, and great emaciation. Two of these cases left the hospital before treatment was fully established, fourteen were discharged as cured and eight died, which calculated in percentages gives 63.6% cured and 36.4% fatal. The injections of leucocytic extract resulted in an improvement of the symptoms depending upon the central nervous system, and vomiting, delirium, stupor and hyperæsthesia were either greatly diminished or disappeared after one or two injections of from five to twenty-five cc. of the extract. There was also a marked reduction in the temperatures.

Seven cases of lobar pneumonia were also treated with the extract. Here there was a recovery of 100% of the cases treated. Here also there was the characteristic drop in temperature, and a change for the better in the subjective symptoms.

Later eleven cases of staphylococcus infection were treated by the same authors[7] with splendid results. Eight of these were cases of chronic furun-

culosis which had lasted in spite of surgical and dietetic treatment for periods of from a few months to some years. In all but one of these cases there was a complete cure made, while in three acute cases treated the same results followed.

Floyd and Lucas[8] reported the use of leucocytic extract in forty cases of pneumonia with a mortality of 12% while in a series of twenty-five cases not treated with leucocytic extract the mortality was more than doubled.

Lambert[9] treated a number of cases, most of them being erysipelas, with results which in his opinion warranted further trials.

Meinhard[10] in experiments upon thirty-nine rabbits and using four times the dose of pneumococcus necessary to kill these animals showed a mortality for the control animals not treated with leucocytic extract of nearly 100%, with recovery of almost 100% for treated animals, although some of these animals did not receive the extract until nearly forty-eight hours after the initial injection of pneumococcus. In these experiments was noted the typical fall of temperature and increase of appetite following the injections of the extract. A small amount of preservative was used for the first time in these experiments and shown to be of no harm to the potency of the extract. A further improvement was also made in the extract by adding a strong solution of sodium chloride to the extracted leucocytes, enough of this salt solution being added to make the extract of physiological salt solution strength. This was done as it had been shown that when the watery solution of the extract was injected it was very painful, while injections of physiological salt solution were not.

Reynolds[11] reporting a series of nine cases of pneumonia with 100% recoveries remarks: "A complete description of these cases represents a severe form of pneumonia running a full course with moderate temperature curve, scarcely noticeable delirium, comparative freedom from toxic effects on the kidneys, and terminating by crisis at the usual time."

Besides these cases reported leucocytic extract has been used with great success on the Pacific Coast for the treatment of lobar pneumonia but as yet many of these cases have not been reported.

Reviewing these cases it is easy to see that leucocytic extract is of use in neutralizing bacterial poisons in the animal body as evidenced by the fall in temperature, general lessening of toxic symptoms and decrease of central nervous system symptoms. It also in neutralizing these poisons gives the leucocytes a chance to recuperate and form new endolysins.

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COLOR REACTIONS*.

E. A. RUDDIMAN.

The author presents reasons for variations in color reactions and refers to defective vision of individuals as one of the dangers for wrong conclusions from color tests.—[EDITOR]

Some years ago the writer made a compilation of color tests of thirty-five alkaloids and eighteen other organic compounds. In doing so it soon became evident that authorities differed widely in the statement of the color produced by a given reagent on a given compound. Recently I have been checking over these tests and have come to the conclusion that the following conditions will account for the variation.

1. There is a great difference in eye-sight and in the power to distinguish colors and shades of colors. What looks like a certain color to one person will resemble another color to a different observer. This defect in some people amounts almost if not entirely to color blindness.

2. There is no recognized standard adopted by chemists with which to compare colors. A certain color can be called a violet-red or a red-violet and both be correct. It is difficult to distinguish the shades, for instance, as they pass from yellow through orange to brown and it is still more difficult to describe them so that another person will catch them. It is to be regretted that there seems to be no convenient standard available for small laboratories so that one writer in describing a color could call it by the name and number of the standard color with which it agrees. The only book of which the writer knows gives about 4000 shades and costs $8.00. A few charts with perhaps 100 to 200 colors would be of great use, provided the colors could be made permanent.

3. The impurities occurring in alkaloids and other compounds will account for some variation. Principles as obtained from drugs and preparations in analytical work are frequently contaminated with foreign matter or are mixtures of several principles, as in case of sabadilla or pomegranate alkaloids. These impurities may modify the color, entirely cover it up, or destroy it. In some cases, as with digitalis glucosides or aconite alkaloids, manufacturers put up different compounds under identical names. Moreover, some chemicals change on keeping and give different results, as apomorphine and apocodeine.

4. Reagents sometimes have impurities in them which modify the colors, as iron or nitric acid in sulphuric acid.

5. Several reagents are made up with sulphuric acid as the solvent. Sulphuric acid being so hygroscopic, it will contain variable amounts of water. If the container of such a reagent is opened frequently for a week, enough water may be absorbed so that no color is obtained when there should be one. Reagents, like Froehde's formaldehyde in sulphuric acid, or ammonium selenite in sulphuric acid should be made up frequently.

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6. The variation in strength of reagents may give different results. Some workers in making up Froehde's reagent use 0.05 gm., others 0.1 gm. up as high as 1.0 gm. for every 10 cc. of sulphuric acid.

7. The actual amount taken of the compound being tested, the amount of the reagent applied, and the proportion of reagent to the compound in certain cases cause a variation. Occasionally where the weight of the compound is directed, it is so much larger than it is possible to get in commercial analysis, the test is of but little value.

8. The order of mixing, whether the reagent is added to the compound or the compound to the reagent, which is in excess, may cause some variation.

9. On adding a reagent the color produced may be permanent, or it may change slowly requiring several minutes or even hours, or it may change very rapidly. The amount of substance being tested will often cause a variation in the time required for the change. Different workers may catch these colors at different stages of change. In analytical work it is impossible to use the same amount of substance each time or as the original test called for.

10. Some tests require the application of heat. The degree of heat and the rapidity with which it is applied in some cases causes a variation.

Since we must depend so largely on color tests for the identification of alkaloids and some other organic compounds, it is unfortunate that so many factors must be considered. To eliminate these as far as possible I would suggest to those who report results from color reagents: That they test the reagents used; that they state the strength of the reagent; that the reagent be added to the compound being tested, or if any other order be followed, it be so stated; that the amount of substance being tested be small, approximating what might be expected in making an analytical examination; that the amount of reagent added be one or two drops from a small stirring rod or dropper, unless otherwise stated; that if heat is to be used, the mixture of substance and reagent be placed on a bath in which the water is already boiling; that the name of the manufacturer of the alkaloid be given, where there is any doubt as to its purity.

ESTIMATION OF ATOXYL.*

H. ENGELHARDT AND O. E. WINTERS.

Quite recently we have had occasion to examine tablets for the amount of atoxyl present. Several methods for estimating atoxyl have been proposed and in order to find out the most reliable one the following assay methods were tried.

I—Sulphurous acid method.[1]

II—The method proposed by Norton and Koch for estimating arsenic in presence of organic matter in a modified form.[2]

III—The method of the German Pharmacopœia.

IV—Method of the German Pharmacopœia modified.[3]

* Read in Scientific Section A. Ph. A., San Francisco meeting.

[1] Puckner and Clark (Journ. Amer. Med. Assn. 1907, p. 1041).

[2] Ibid, Norton and Koch (Jour. Amer. Chem. Sec. 1905, p. 1247).

[3] Rupp and Lehman (Apoth. Zeit. 1911, p. 203).

V—W. Dullière's method.[4]

VI—Bougeault's hypophosphite method.[5]

The methods are carried out as follows:

Method I—A weighed quantity of atoxyl is placed in a strong flask of about 150 cc. capacity, 50 cc. of a freshly prepared saturated solution of sulphur dioxide added, and the flask stoppered with a sound cork tied down firmly. The flask and contents are heated in a water-bath for one hour, allowed to cool, the contents transferred to an Erlenmeyer flask and evaporated on a water-bath until all sulphur dioxide is expelled. After cooling the solution is made nearly neutral with sodium hydroxide, 2 gms. sodium bicarbonate added and the arsenic titrated with N/10 iodine V.S. using starch as an indicator.

When applying the method to a sample of atoxyl the following results were obtained:

Method I—26.58 per cent arsenic
22.61 " "
25.70 " "
25.60 " "

Method II—A weighed quantity of atoxyl is placed in a Kjeldahl flask and digested with 20 cc. of concentrated sulphuric acid until clear and nearly colorless. The mixture is transferred to a flask, using about 100 cc. of water to complete the transfer, made neutral with sodium hydroxide, 2 gms. sodium bicarbonate added and the arsenic titrated with N/10 iodine V.S.

The following results were obtained:

Method II—24.7 per cent arsenic
24.5 " "

This method is rather tedious and cumbersome. It takes almost six hours to oxidize the atoxyl.

Method III—.2 gm. of atoxyl is mixed in a flask with 10 cc. of sulphuric acid and one cc. of fuming nitric acid and the mixture heated to boiling and boiled for one hour. After cooling two successive portions of each 50 cc. of water are carefully added and each portion is again removed by boiling. The residue is then diluted with 10 cc. of water, allowed to cool and mixed with 2 gms. of potassium iodide and 5 cc. of water, and finally sufficient water is added to dissolve any precipitate formed. After allowing the mixtures to stand for one half hour the iodine is titrated with N/10 sodium thiosulphate solution, each cubic centimeter of the latter corresponding to .003748 gms. of arsenic.

The following results were obtained:

Method III—27.3 per cent arsenic
27.18 " "
26.80 " "

Method IV—.2 gm. of atoxyl is mixed in a 200 cc. flask with 10 cc. of concentrated sulphuric acid and the mixture heated on a water-bath at about 70°. One gram of crystallized potassium permanganate is then added in small portion shaking well after the addition of each portion, additional permanganate being added only when the evolution of gas has ceased. To the mixture, drop by drop 5 to 10 cc. of hydrogen peroxide solution is added until the brown color has disappeared and the solution has become limpid: The liquid is diluted with

[4] W. Dullière (Journ. Pharm. et Chim. 1912, p. 567).
[5] Bougeault (Journ. pharm. et chim. 1903, p. 97 and 1907, p. 13).

20 cc. of water, boiled 10 to 15 minutes and again diluted with 50 cc. of water. After cooling 2 gms. of potassium iodide is added, the mixture allowed to stand in a well-closed flask for one hour and the liberated iodine titrated in the usual way with N/10 sodium thiosulphate solution. The results obtained were the following:

Method IV—26.98 per cent arsenic
26.98 " "
26.98 " "
27.0 " "
27.0 " "
27.0 " "

Method V—.5 gm. of atoxyl is dissolved in 25 cc. of water, 20 cc. of N/10 silver nitrate solution are added and then sufficient water to make 50 cc. The liquid is mixed thoroughly and filtered. 25 cc. of the filtrate are mixed with ferric alum solution and a few drops of nitric acid and the excess of the silver nitrate is titrated back by ammonium sulphocyanide solution. The number of cubic centimeters of silver nitrate solution multiplied by .0075 would represent the amount of arsenic, if the silver atoxyl were completely insoluble in water. Since, however, this is not the case, the portion soluble in water should be taken into consideration and for this purpose .9 cc. should be added to the total amount of silver nitrate solution after subtracting the amount of sulphocyanide solution used for retitration.

The results were as follows:

Method V—25.91 per cent arsenic
25.94 " "
27.24 " "
27.39 " "
27.39 " "

Method VI—Atoxyl when treated with hypophosphorous acid in the cold is polymerized. This polymeric product is oxidzed by iodine to amino-phenylarsenic acid. The reducing agent is obtained by dissolving 20 gms. of sodium hypophosphite in 20 cc. of water, adding to the solution 200 cc. of hydrochloric acid (1.17) and decanting the clear liquid from the separated sodium chloride. .15 to .2 gm. of atoxyl is dissolved in 1 or 2 cc. of water, the solution mixed with 15 to 20 cc. of the reducing agent and allowed to stand for 24 hours. The mixture is diluted with 15 to 20 cc. of water, the precipitate separated by filtration, washed well with diluted hydrochloric acid and is then treated for one-quarter hour with an excess of N/10 iodine solution. The excess of iodine is titrated back with N/10 sodium thiosulphate. We obtained the following results:

Method VI—37.5 per cent arsenic
28.0 " "
17.26 " "
21.56 " "

These results show that Method VI is almost worthless. When filtering and washing the yellow precipitate produced with hypophosphorous acid, at times a great amount of the precipitate goes through the filter.

We found that the modification of the method of the German Pharmacopœia works very well and gives satisfactory results.

The above figures further show that the salt used for the experiments which had been kept for about one year in a partly filled bottle, probably had lost some of its water of crytallization and contained only about two molecules of water.

Atoxyl with 3 molecules of water contains 25.59 percent of arsenic, with 2 molecules of water 27.3 percent of arsenic.

Considering the toxic character of atoxyl, great care should be taken in analyzing the product and arranging the dose according to the amount of arsenic.

It is interesting to note the varying composition of atoxyl in regard to water given in the literature. Thus Ehrlich and Bertheim[6] report 4 molecules. Bechamp[7] gives atoxyl with 5 molecules of water and when recrystallized from water with 6 molecules. When, however, recrystallized from an aqueous-alcoholic liquid the salt crystallized with only 2 molecules. Fourneau[8] claims that atoxyl crystallizes with 5 molecules and that it loses all the water but two molecules when exposed to the air. Moore, Nierenstein and Todd[9] report 3 molecules of water of crystallization.

We then examined tablets of different grainage both by the method of the German Pharmacopœia and its modification and obtained the following results:

German Pharmacopœia.	German Pharmacopœia modified.
1/3 gr. 0.3114 gr.= 93.4 per cent	0.323 gr.= 96.9 per cent 0.3126 " = 93.7 "
1 gr. 0.993 " = 99.3 "	0.977 " = 97.9 " 1.0006 " =100.06 "
3 gr. 2.83 " = 94.3 "	2.79 " = 93 "
5 gr. 5.05 " =101 "	4.9 " = 98 " 4.99 " = 99.9 "

The calculation was based on atoxyl containing 3 molecules of water of crystallization.

Although this paper does not bring out anything new, we thought it might be interesing to compile the various methods offered for estimating atoxyl and scattered throughout the literature and give our experience with these methods. So far all experiments with estimating atoxyl in pills and tablets containing also Blaud's mass have failed, but we hope to report on a reliable method in the near future. The large amount of iron in the combination (5 grains Blaud's mass and 1/3 grain atoxyl) greatly disturbs the estimation.

ANALYTICAL LABORATORY OF SHARP & DOHME.

DISCUSSION.

Dr. Dohme: I would like to ask whether any steps were taken to determine whether the tested atoxyl contained varying amounts of water of crystallization or not?

Dr. Engelhardt: The atoxyl which was taken for the estimation was an old sample which contained about two molecules of water of crystallization. We expect to continue the experiments with atoxyl containing varying amounts of water of crystallization in connection with the determination of atoxyl in the presence of Blaud's mass.

[6] Berl. klin. Woch. 1901, 282.
[7] Compt. rend. 411, 1172.
[8] Journ. pharm. et chim. 1907, 530.
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TINCTURES*.

WILBUR L. SCOVILLE.

The following paper presents a comparison of tinctures made by percolation of drugs and by diluting fluidextracts. A purpose of the work undertaken was to determine the relative stability of the two classes of tinctures.—[EDITOR].

In the fall of 1912 a series of tinctures was made in order to ascertain what differences, if any, could be observed between a tincture prepared by the official process from the drug and one made by diluting the corresponding fluidextract with the proper menstruum.

Forty-six of the Pharmacopoeial tinctures were made by the official process, in lots of 500 cc. to 2000 cc. each, according to the quantities which would be needed in making subsequent tests. The drugs were taken from stock and were all of good quality, though no special selection was made in any case, and the official process was carefully followed in making the tinctures. At the same time a line of the same tinctures was made by diluting the corresponding fluidextracts according to directions on the labels, the fluidextracts also being taken from stock without special selection in any case.

It is at once apparent that since different lots of drug of the same kind vary in strength, in soluble extractive, and to some extent in color, that the two corresponding tinctures would not be absolutely comparable because the fluidextract used was made from a different lot of drug than the official tincture. But the purpose of the investigation was not to see how closely the tinctures cold be made to compare by the two methods, but to note such differences as might be found under ordinary commercial conditions.

When the tinctures were finished each was tested for specific gravity, alcohol strength, dry extractive and the standardized tinctures were assayed for alkaloidal strength. A comparison of the color and brilliancy of each pair of tinctures was also made.

The tinctures were stored in amber glass bottles in a diffused light, and under the ordinary temperature changes of a working laboratory. The bottles were all full at first, but as tests were made some of each was taken out and the bottle re-stoppered, leaving increasingly voluminous air-spaces above the liquids. At the end of the two years from half to seven-eights of each tincture had been removed.

The extractive-estimations and alkaloidal assays were repeated at the end of the first year, and all the tests at the end of the second year. The results are shown in the following table:

*Read before Scientific Section, A. Ph. A., San Francisco Meeting.

Drug	Tinct.	Spec. Grav. 1912	Spec. Grav. 1914	Alcohol % 1912	Alcohol % 1914	Dry Extractive 1912	Dry Extractive 1913	Dry Extractive 1914	Alkaloid Str. 1912	Alkaloid Str. 1913	Alkaloid Str. 1914	Colors	Physical Appear.
Aconite	U. S. P.	.8980	.8970	65.3	66.2	1.76	1.68	1.70	.045	.045	.045	Same	vy. sl. ppt.
	Fld.	.8970	.8969	68.0	67.4	2.80	2.77	2.80	.045	.045	.045		Clear.
Aloes	U. S. P.	.9810	.9810	42.9	43.3	13.6	13.6	13.4				Same	ppt. heav. than fld.
	Fld.	.9768	.9760	39.2	41.8	10.9	10.8	10.8					Mod. ppt.
Aloes and Myrrh.	U. S. P.	.9200	.9224	65.1	66.1	17.9	12.1	12.0				Same	Much ppt.
	Fld.	.9290	.9309	63.9	62.8	17.8	12.2	12.5					Much ppt.
Arnica Flors.	U. S. P.	.9354	.9337	45.0	45.8	4.58	4.60	4.56				Sl. darker	Sl. ppt.
	Fld.	.9272	.9267	46.6	46.5	3.26	3.20	3.22					Sl. ppt.
Asafoetida	U. S. P.	.8350	.8350	89.9	89.3	6.70	6.55	6.50				Lighter	Sl. ppt.
	Fld.	.8486	.8482	85.1	85.7	8.95	8.92	8.94					Sl. ppt.
Belladonna Leaf.	U. S. P.	.9464	.9457	48.1	46.5	3.03	2.88	2.88	.034	.0345	.035	Dk. brown	Cons. ppt.
	Fld.	.8846	.8847	71.9	71.6	1.35	1.31	1.32	.030	.031	.029	Dp. Green	Sl. ppt.
Benzoin	U. S. P.	.8724	.8732	81.6	80.1	17.8	17.7	17.8				Same	Clear.
	Fld.	.8600	.8592	83.4	82.7	10.5	10.5	10.5					Vy. sl. ppt.
Benzoin Comp.	U. S. P.	.8840	.8848	77.9	76.3	20.0	19.4	18.8				Same	Sl. ppt.
	Fld.	.8842	.8846	77.4	75.9	18.8	18.8	18.9					Sl. ppt.
Calendula	U. S. P.	.8264	.8260	91.6	90.8	4.40	4.50	4.40				Darker	Clear.
	Fld.	.8234	.8227	93.0	92.0	2.20	2.20	2.20					Vy. sl. ppt.
Calumba	U. S. P.	.9268	.9295	56.1	55.3	3.1	3.1	3.1				Sl. lighter	Sl. ppt.
	Fld.	.9134	.9133	60.8	60.3	2.5	2.5	2.5					Sl. ppt.
Cannabis Ind.	U. S. P.	.8178	.8182	93.3	92.3	1.46	1.40	1.42				Red-brown	Vy. sl. ppt.
	Fld.	.8144	.8140	94.1	93.3	1.36	1.37	1.36				Dp. green	Clear.
Capsicum	U. S. P.	.8332	.8330	88.0	87.4	2.8	2.8	2.8				Sl. darker	Vy. sl. ppt.
	Fld.	.8290	.8288	89.7	89.6	1.7	1.7	1.7					Clear.
Cimicifuga	U. S. P.	.8204	.8200	91.3	91.8	1.30	1.26	1.32				Yel.-br.	Clear.
	Fld.	.8254	.8247	91.7	90.6	1.32	1.34	1.32				Lt. Brown	Mod. ppt.
Cinchona	U. S. P.	.9272	.9260	61.8	62.7	10.9	10.8	10.4	.528	.509	.485	Same	Much ppt.
	Fld.	.9318	.9272	62.0	61.4	13.9	13.7	13.7	.850	.750	.720		Much ppt.
Cinchona Comp.	U. S. P.	.9394	.9392	60.1	60.7	14.4	14.2	12.8	1.06	1.038	1.037	Same	Much ppt.
	Fld.	.9104	.9082	71.3	70.8	12.8	12.5	11.2	0.476	0.473	0.450		Much ppt.
Cinnamon	U. S. P.	.9246	.9247	61.9	61.7	10.1	9.8	9.8				Darker	Sl. ppt.
	Fld.	.9180	.9185	62.5	62.8	8.9	8.7	8.7					Clear
Colchicum Sd	U. S. P.	.9176	.9187	57.0	56.5	1.21	1.22	1.22	.040	.040	.040	Same.	Vy. sl. ppt.
	Fld.	.9200	.9208	54.8	54.2	0.63	0.62	0.63	.040	.040	.040		Clear.
Gambir Comp.	U. S. P.	.9546	.9548	44.5	44.4	4.55	4.6	4.6				Same	Clear.
	Fld.	.9524	.9524	46.1	45.8	5.55	4.5	4.5					Clear.
Gelsemium	U. S. P.	.9100	.9093	61.7	61.0	1.85	1.80	1.88	.047	.047	.043	Sl. darker	Sl. ppt.
	Fld.	.9132	.9128	60.0	59.4	1.47	1.45	1.44	.045	.047	.042		Vy. sl. ppt.
Gentian Comp.	U. S. P.	.9306	.9308	56.2	54.8	4.37	4.44	4.42				Sl. lighter	Sl. ppt.
	Fld.	.9300	.9295	55.1	55.6	4.33	4.35	4.38					Sl. ppt.
Ginger	U. S. P.	.8174	.8180	93.3	93.0	0.82	0.82	0.90				Sl. lighter	Clear.
	Fld.	.8178	.8175	92.0	91.7	0.84	0.85	0.90					Clear.
Guaiac	U. S. P.	.8880	.8898	81.8	80.1	22.1	21.2	21.1				Dk. brown	Mod. ppt.
	Fld.	.8780	.8806	81.6	79.7	18.5	18.2	18 2				Red-brown	Vy. sl. ppt.
Ammon Guaiac	U. S. P.	.9648	.9650	54.8	54.0	24.2	23.6	22.4				Same	Heavy ppt.
	Fld.	.9390	.9456	60.4	59.2	18.8	18.7	18.75					Less ppt.
Hydrastis	U. S. P.	.9235	.9223	60.3	60.2	5.1	5.2	5.0	0.47	0.39	0.29	Same	Mod. ppt.
	Fld.	.9272	.9265	58.5	58.8	5.3	5.3	5.4	0.38	0.37	0.36		Sl. ppt.
Hyoscyamus	U. S. P.	.9456	.9457	47.0	46.8	2.82	2.83	2.90	.0070	.0071	.0072	Red-brown	Mod. ppt.
	Fld.	.9356	.9377	48.6	49.1	1.65	1.60	1.64	.0055	.0055	.0056	Dp. green	Sl. ppt.
Krameria	U S. P.	.9524	.9554	44.4	44.3	4.47	4.40	4.50				Same	Mod. ppt.
	Fld.	.9560	.9584	43.6	43.6	5.2	5.3	5.3					
Lavender Comp.	U. S. P.	.8834	.8920	71.4	69.2	0.90	0.90	0.92				Lighter	Clear.
	Fld.	.8830	.8830	71.7	71.3	0.65	0.66	0.67					Clear.
Lobelia	U. S. P.	.9460	.9462	46.7	45.3	2.28	2.32	2.32				Sl. lighter	Mod. ppt.
	Fld.	.9468	.9465	46.8	45.8	2.88	2.88	2.90					Sl. ppt.
Myrrh	U. S. P.	.8380	.8410	87.0	86.8	7.6	7.5	7.4				Cons. light.	Clear.
	Fld.	.8310	.8310	90.0	90.2	5.7	5.8	5.8					Clear.
Nux Vomica	U. S. P.	.8850	.8840	72.0	71.6	1.5	1.4	1.4	.098	.097	.079	Sl. lighter	Sl. ppt.
	Fld.	.8842	.8845	72.9	70.8	1.2	1.1	1.1	.100	.099	.090		Clear .
Opium	U. S. P.	.9618	.9615	44.8	43.0	7.9	6.9	6.9	1.21	1.20	1.21	Same	Mod. ppt.
	Fld.	.9554	.9552	44.5	43.6	4.5	4.5	4.5	1.25	1.25	1.25		Mod. ppt.
Camphorated Opium.	U. S. P.	.9492	.9490	43.5	44.0	4.5	4.4	4.5				Same	Clear.
	Fld.	.9445	.9443	47.0	46.8	4.5	4.5	4.5					Clear.
Orange, Bitter.	U. S. P.	.9390	.9412	55.5	56.4	6.48	6.44	6.47				Same	Sl. ppt.
	Fld.	.9316	.9320	54.5	55.1	4.96	4.98	4.90					Less ppt.
Physostigma	U. S. P.	.8142	.8148	94.7	93.7	0.32	0.29	0.30	.0143	.0106	.0077	Reddish	Vy. sl. ppt.
	Fld.	.8134	.8135	94.8	94.2	0.20	0.19	0.20	.0146	.0140	.0125	Greenish	Clear.
Pyrethrum	U. S. P.	.8188	.8185	92.8	92.1	1.16	1.20	1.10				Sl. lighter	Clear.
	Fld.	.8216	.8215	91.9	92.1	1.48	1.50	1.40					Mod. ppt.
Quillaja	U. S. P.	.9806	.9810	28.5	30.0	5.01	4.99	5.00				Darker	Heavy ppt.
	Fld.	.9750	.9748	30.7	29.9	4.24	4.16	4.18					Mod. ppt.
Rhubarb	U. S. P.	.9960	.9964	44.0	44.1	20.2	19.9	20.2				Same	Cons. ppt.
	Fld.	.9860	.9863	43.7	43.1	17.3	17.3	17.4					Sl. ppt.
Arom, Rhubarb.	U. S. P.	1.003	1.014	42.3	42.1	21.5	21.1	21.1				Same	Sl. ppt.
	Fld.	1.015	1.004	42.3	41.8	21.4	21.6	21.4					Cons, ppt.
Sanguinaria	U. S. P.	.9314	.9322	54.3	57.4	3.37	3.36	3.35				Darker	Cons. ppt.
	Fld.	.9174	.9192	53.4	56.0	1.57	1.55	1.56					Cons. ppt.
Serpentaria	U. S. P.	.9112	.8972	61.7	60.4	2.40	2.52	2.50				Same	Sl. ppt.
	Fld.	.9110	.8960	60.1	60.7	1.32	1.41	1.36					Clear.
Squill	U. S. P.	.9040	.9041	70.2	69.1	6.6	6.2	6.2				Same	Sl. ppt.
	Fld.	.8900	.8922	68.7	68.5	2.4	2.3	2.35					Clear.
Stramonium Lf.	U. S. P.	.9246	.9362	47.1	46.9	2.48	2.45	2.50	.025	.025	.024	Red-brown	Cons. ppt.
	Fld.	.9262	.9365	48.2	48.2	1.56	1.53	1.50	.0245	.0245	.0238	Dk green	Mod. ppt.
Tolu	U. S. P.	.8790	.8795	79.2	79.2	18.0	17.8	17.8				Sl. lighter	Clear.
	Fld.	.8880	.8890	76.8	76.0	17.9	16.9	16.9					Vy. sl. ppt.
Valerian	U. S. P.	.8844	.8850	70.8	70.9	1.67	1.67	1.68				Sl. lighter	Clear.
	Fld.	.8882	.8878	72.1	71.6	2.40	2.42	2.42					Clear.
Ammon. Valerian.	U. S. P.	.9066	.9056	65.8	65.7	4.20	4.20	4.26				Same	Mod. ppt.
	Fld.	.9026	.9012	65.4	65.0	2.70	2.70	2.71					Mod. ppt.
Veratrum	U. S. P.	.8190	.8186	94.1	92.9	1.32	1.34	1.34	.063	.063	.063	Same	Clear.
	Fld.	.8154	.8153	94.1	92.9	0.75	0.76	0.75	.063	.072	.071		Clear.

The specific gravities were taken the first time with a 50 cc. pycnometer on an ordinary prescription balance, and the second time a 100 cc. pyconometer was used on the same balance. The gravities are thus approximate only.

Alcohol estimations were made by diluting one part of the tincture with two parts of water and distilling two parts. The alcohol was then calculated from the specific gravity of the distillate. When volatile oils or other volatile substances are present in a tincture, these will come over in varying quantities, depending upon the rate of distillation and the amount distilled. This affects the specific gravity and consequently the results, and a variation of one percent on different estimations is within the ordinary limits of error. Hence it is not considered that any actual change in alcohol strength occurred in the two years unless the difference is decided.

In the greater number of instances the second estimation shows results slightly lower than the first, which may indicate a tendency to loss in alcohol strength, but in no instance is the difference great enough to draw positive conclusions, and there are numerous instances of reverse results.

When marked precipitation has occurred the second results are often higher than the first, as might be expected, but here again the differences are too small to be important.

The only instance of marked difference between the two tinctures of a pair is in the case of Tincture of Belladonna. The official tincture is made with a menstruum of diluted alcohol while the fluidextract is made with a menstruum of about 75 percent alcohol. In making the tincture, the fluidextract was diluted with this stronger menstruum since it causes less precipitation than would diluted alcohol. In the other cases the difference between the menstruum for the fluidextract and that for the tincture is less marked, and clear tinctures are obtained by the use of the official tincture-menstruum for diluting.

Dry extractives were obtained by evaporating 5 cc. of the tincture in a small copper evaporating dish, having a capacity of about 10 cc. Evaporation was conducted on a sand-bath heated by a normal-pressure steam coil, and was continued over night, or 15 to 16 hours. Different pipettes were used each time, and the variations in these probably will account for the slight discrepancies which may be noted in the results.

It will be observed that changes in extractive usually correspond to precipitation, but not always. It is probable that in some instances oxidation occurs to an appreciable extent.

In the case of the standardized (alkaloidal) tinctures, and also with tinctures of cannabis indica, and squill, which were made from physiologically standardized fluidextracts, the extractives indicate only the physical condition of the tinctures at the beginning and end of the tests.

As a standard of the strength or value of a tincture the amount of extractive is only partially satisfactory, since the ratio of extractive to activity is not constant in any case. For those tinctures which cannot be assayed for active principle it affords the only test we have, in many instances. That it may be deceitful, however, is shown in the fact that of the two tinctures of capsicum, the one containing the less extractive is decidedly the more pungent, hence presumably the more active.

Of the 30 tinctures for which no better method of comparison was found, seventeen show the U. S. P. tincture to contain the larger proportion of extractive at the end of two years, six contain a smaller proportion, and seven are practically equal.

There is no suggestion in these results that certain classes of tinctures tend to run above or below normal when made from fluidextracts. For instance, of the resinous tinctures, Benzoin, Guaiac, Ammoniated Guaiac, Myrrh and Tolu are higher in the U. S. P. tinctures, while Benzoin Compound and Ginger are about equal and Asafoetida and Aloes and Myrrh are below. Of the cathartic tinctures the U. S. P. Aloes and Rhubarb are higher while Aloes and Myrrh is lower and Aromatic Rhubarb is about equal.

It will also be noticed that the U. S. P. tinctures tend to precipitate more than the others, and that at the end of a year the two tinctures are more nearly equal than when freshly made.

The alkaloidal tinctures disclose two unexpected changes, namely the loss in strength of the tinctures of Nux Vomica and of Hydrastis. The fluidextracts of these two drugs have been shown to be permanent, but the loss in strength of the tinctures is unmistakable. In each instance the U. S. P. tincture has lost more than the tincture made from the fluidextract, and the loss is greater during the second year, but each tincture has lost. The assays were repeated in each instance, so that these cannot be questioned. The U. S. P. tinctures have precipitated, but the others are so nearly clear that the loss in strength does not appear to be due to this cause.

The tinctures of Physostigma have also deteriorated, but this was more to be expected since the stability of Physostigma preparations has previously been questioned.

The U. S. P. tincture has lost half of its original strength and has precipitated some, while the other tincture has lost much less and remains clear.

The Cinchona tinctures have all lost in strength, and have also precipitated badly. It has previously been shown that precipitation in galenical preparations of Cinchona carries down some of the alkaloids, so this result was anticipated.

The other alkaloidal tinctures show no material loss in strength in two years.

With regard to color, tinctures made by the different methods in most instances show no more differences in color than would be expected from different lots of drugs. Where a difference is noted in the table, the difference is usually slight and would not be observed except by comparison. There are, however, five notable exceptions:—the tinctures of Belladonna, Hyoscyamus, Stramonium, Cannabis Indica and Physostigma can be easily distinguished as to source by color alone. In the first four, the U. S. P. preparations all have a brownish color with little or no tint of green, while the tinctures made from the fluidextracts are all bright green in color with no trace of red or brown. This cannot be accounted for by differences in menstruum, (unless possibly in the case of Belladonna) and it is not easy to understand. The U. S. P. tinctures when first made had a decidedly greenish color, but lost it on standing. Why the others did not change also is not understood

Much less difference is observed in the two tinctures of Physostigma, yet even here there is a marked difference in tint.

In the other cases any difference observable is one of shade rather than of tint. The differences in the tinctures of Asafoetida, Calendula, Myrrh, Quillaja and (perhaps) Guaiac is marked enough so that they might be noticed by a patient, but in the rest of the cases a comparison is necessary.

As might be expected, precipitation most often occurs in the U. S. P. tinctures, and so far as could be judged by the eye, most of it occurred during the first year. However, the table shows that tinctures will often precipitate when the corresponding fluidextracts do not. This is in accordance with the general observation that concentrated solutions are usually more stable than dilute.

Conclusions: On the whole the tinctures made from fluidextracts compare very favorably with those made direct from the drugs. In the case of the standardized tinctures, the strength is necessarily the same, and the stability is fully as good, if not better.

The non-standardized tinctures leave more to the judgment because we have no definite standards for comparison, but it is probable that there is no more difference between those made by the two methods than there would be between different tinctures made by the same method with different lots of drugs.

One of the main purposes of this investigation was to ascertain if tinctures from fluidextracts are as stable as those made direct from the drugs. This question is answered satisfactorily. The results show a greater rather than a less stability.

LABORATORY OF PARKE, DAVIS & CO., Detroit, Mich.

ABSTRACT OF DISCUSSION.

Dr. Asher: I would like to ask Professor Scoville whether in diluting these tinctures the same menstrumm was used, or if a menstruum was used equivalent to U. S. P. strength. What was the alcoholic strength of the menstruum employed?

Prof. Scoville: In the case of belladonna it was diluted with the same menstruum as the fluidextract. I cannot say definitely in every case, but in most cases the dilution was made with the menstruum for the tincture, but as a rule there is very little difference. The difference in menstrua of tinctures and fluidextracts is very much less than it used to be. They are getting to be more and more uniform. The next Pharmacopoeia will make them still more uniform.

Mr. Lackenbach: The dispensing pharmacist, particularly in the smaller communities, has always been timid about making tinctures from fluidextracts. He would do it almost invariably, but in an underhanded way, thinking it was not right to do so. In some cases it has been carried to extremes, for instance in the preparation of tincture of digitalis from the fluidextract. But according to Mr. Scoville's paper it would seem that the dispensing pharmacist is justified in using the fluidextracts, especially the standardized fluidextracts. I think that would be a great relief to the pharmacists, especially in the smaller communities, who do not have occasion to make large batches of tinctures, and the fluidextracts sent out by the large pharmaceutical houses are very convenient.

Dr. Turner: It may be stated that in the case of tinctures prepared from fluidextracts which contain alkaloids there should not be any difference. In making the fluidextracts the drug is exhausted, so it no longer contains any alkaloid. Tinctures prepared from these must be just as active as the ones which are prepared by percolation directly from the drug. It is interesting to note that Professor Hatcher in his paper read recently before the New York Branch of this Association, gave illustrations of tinctures made from drugs as well as fluidextracts wherein he showed that there was no variation in the products.

Mr. Lackenbach: I think there must be an exception in the case of digitalis because the alcoholic menstruum will remove the principles that are not desired in the diuretic effect of

the drug. It seems to me rather reprehensible to use fluidextract of digitalis in preparing a tincture.

Dr. Arny: Ten years ago if we had heard Professor Scoville make that statement in regard to tinctures, I would have been ready to fight him. Dr. Hatcher in his little book on Materia Medica, published ten years ago, stated that the infusion of digitalis from the fluidextract was scarcely short of criminal, and he got up at the meeting of the New York Branch and stated that the physiological tests now showed that the two were identical. That being the case, I think we must revise our Pharmacopoeia as well as our Materia Medica.

Dr. Wulling: This discussion merely emphasizes the fact that we are not sufficiently qualified to determine the value of the drug unless we test it in more than one way, and the physiological test of drugs has compelled many of us to change our views.

THE ESTIMATION OF MORPHINE IN PILLS AND TABLETS.

H. W. JONES.

The author reviews various methods proposed for extracting morphine with immiscible solvents. The method of estimation described depends on the conversion of morphine into diacetyl morphine and elimination of the diluents employed in making pills and tablets.

The assay of pills and tablets containing morphine or its salts presents certain difficulties because of the comparatively slight solubility of the alkaloid in any of the immiscible solvents ordinarily used. Of the simple solvents, amyl alcohol is the only one which dissolves morphine to any extent and this to so small a degree as to preclude its use where accurate results are desired. In case the morphine is present as a salt, it is always possible to estimate the acid radical but in the case of the sulphate at least, it has been the writer's experience that this procedure leads to high results.

Various compound solvents have been suggested, among which may be mentioned phenylethyl alcohol-benzol, methyl alchohol-benzol, methyl alchohol-chloroform, ethyl alcohol-chloroform and isobutyl alcohol-chloroform, all of which have been used with varying degrees of success. It is not the purpose of this paper to discuss the merits of these different solvents further than to mention that a mixture of one part alcohol and two parts chloroform by volume, as suggested by Williams[1], has been used in this laboratory for the extraction of morphine with excellent results. We have modified slightly the method as described by Williams, using sodium bicarbonate instead of ammonia to liberate the alkaloid. By introducing this modification we have been able to obtain more concordant results, verifying the findings of Puckner..[2]

The object of this paper is to describe a method devised by me and which in my hands has given very good results. The principle of this method is the conversion of the morphine into an acetyl derivative, extraction with chloroform, and subsequent titration with standard acid. As morphine is most commonly used as the sulphate, this salt was used in the investigation. It was

* Presented in Scientific Section A. Ph. A., San Francisco meeting.

[1] A paper presented at the meeting of the American Chemical Society, Washington, D. C., December, 1911. See American Journal Pharmacy, 86, 308.

[2] Journal American Chemical Society, 23 (1901), 470.

first necessary to determine the purity of the sample used, which was done as follows:

One gm. morphine sulphate treated with $BaCl_2$ yielded 0.3129 gm. $BaSO_4$ equivalent to 1.016 gm. morphine sulphate or 101.6 percent; 0.2 gm. morphine sulphate dissolved in water, made alkaline with $NaHCO_3$ and extracted with 5 portions of alcohol-chloroform (1:2). After removing the solvent the residue consumed 5.31 cc. N/10 H_2SO_4 equivalent to 0.19989 gm. morphine sulphate or 99.99 percent. In order to determine if codeine was present in appreciable amounts, 1 gm. of the morphine sulphate was dissolved in water made alkaline with KOH, and extracted three times with chloroform. The chloroform, after filtering through MgO to remove traces of alkali, was distilled off and the residue on titrating consumed 0.25 cc. N/10 H_2SO_4 equivalent in 0.975 percent codeine sulphate. For the purpose of this investigation, the sample was therefore considered as 100 percent pure.

Not to burden the paper with a description of the various experiments made, suffice it to say that the following procedure was finally hit upon: 0.2 gm. morphine sulphate was placed in a clean, dry 120 cc. Erlenmeyer together with 0.1 gm. anhydrous sodium acetate and 3 cc. acetic anhydride. The flask was then fitted with a condensing tube and heated on a steam bath for one hour. The mixture was diluted with 25 cc. of water and the flask rotated until complete solution was effected. The liquid was then transferred to a separator, made slightly alkaline to litmus with ammonia, and extracted with 4 portions of chloroform, after which the chloroform was distilled from the combined extracts, the residue dissolved in 6 cc. N/10 H_2SO_4 and the excess acid titrated with N/100 KOH using cochineal as indicator. By this method the following results were obtained:

1. 5.3 cc. N/10 H_2SO_4 consumed=0.1995 gm. Morphine Sulphate=99.7 percent.
2. 5.32 cc. N/10 H_2SO_4 consumed=0.2 gm. Morphine Sulphate=100 percent.

It will be understood that, although titrating acetyl morphine the factor to be used is that for morphine sulphate, i. e.,—

1 cc. N/10 Acid=.03764 gm. morphine sulphate.

As a further check on the accuracy of the method, a sample of morphine alkaloid, found by titration to be 100 percent pure, was treated in the same manner with the following results:

1. 0.15 gm. morphine taken required 4.99 cc. N/10 H_2SO_4=0.1497 gm. morphine=99.8 percent.
2. 0.15 gm. morphine taken required 4.97 cc. N/10 H_2SO_4=0.1491 gm. morphine=99.4 percent.

Having established in this manner that the conversion of the morphine into the acetyl derivative is quantitative, the method was then tried out on a number of pills and tablets to determine if it was applicable in a practical way. Here a new difficulty arose. Pills and tablets as a rule, contain considerable quantities of starch or milk sugar or both of these substances, and the action of acetic anhydride upon them produces acetyl starch or acetyl lactose, which compounds are soluble in chloroform and if carried through with the acetyl morphine, will obscure the end-point so that the titration becomes unreliable. To obviate this difficulty the following procedure was adopted.

Place a number of pills or tablets equivalent to 3 grains of morphine sulphate in a clean dry 120 cc. Erlenmeyer flask, add 0.1 gm. anhydrous sodium acetate and 4 cc. acetic anhydride. Fit the flask with a condensing tube and heat for one hour on a steam bath. (In the case of pills, coated or uncoated, it is usually necessary, after heating 10 or 15 minutes, to remove the condensing tube and with a stirring-rod disintegrate the pills, afterwards rinsing off the tip of the rod with a few drops of acetic anhydride and then continuing the heating for the balance of the hour.) Dilute the liquid in the flask with 25 cc. of water and rotate until solution seems to be effected. The acetyl compounds of starch or milk sugar being insoluble, will settle on the sides of the flask. Pour the solution into a separator and rinse the flask with two small portions of water, then with two portions of 15 cc. each of chloroform, and finally with two more portions of water, adding all these rinsing to the separator. (It is necessary to rinse the flask with chloroform in order to remove the acetyl starch or acetyl lactose which may hold some of the acetyl morphine.) Place a piece of litmus in the separator and add ammonia water until the liquid is slightly alkaline. Then shake for two minutes and when the liquids have separated, draw off the chloroform through a pledget of cotton into another separator. Repeat the extraction with choloroform three more times, drawing the chloroform extracts into the second separator. Then extract the combined chloroformic liquids with first, 20 cc 10 percent H_2SO_4; second, 10 cc. 10 percent H_2SO_4 and 10 cc. water, and finally with 5 cc. 10 percent H_2SO_4 and 15 cc. water. Combine the aqueous extracts in another separator, make slightly alkaline with ammonia, and extract four times with chloroform. Draw the chloroformic extracts into a flask and distill off the chloroform on a steam bath. Dissolve the residue in 6 cc. N/10 H_2SO_4 and titrate the excess of acid with N/100 KOH using cochineal as indicator.

Below are given some of the results obtained by applying this method to pills and tablets of morphine sulphate:

Pill or Tablet.	Grains Morphine Sulph. by Acetylization.	Grains Morphine Sulph. by Alcohol-Chloroform.
G. C. Pill ¼ gr.	0.239	0.24
G. C. Pill ¼ gr.	0.241	0.246
G. C. Pill ½ gr.	0.498	0.49
G. C. Pill ½ gr.	0.397	0.4
T. T. ¼ gr.	0.237	0.24
H. T. ½ gr.	0.511	0.519
H. T. ¼ gr.	0.231	0.237
H. V. T. 1 gr.	0.985	0.983

It will be seen that the method gives accurate results, and while it offers no particular advantages over the direct-extraction methods, I have found it useful as an alternative when a check assay is desired. A determination may be run in about two hours, and no troublesome emulsions are experienced. On the other hand, its field is limited, as it can be applied only to dry mixtures. The presence of moisture would of course inhibit the acetylization process.

LABORATORY OF THE WM. S. MERRELL CHEMICAL COMPANY, Cincinnati, Ohio.

Editorial

E. G. EBERLE, Editor.....63 Clinton Building, Columbus, Ohio

THE NEW HOME OF THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

WHILE it will make little or no difference, practically, to our readers where the publication office of the Journal of the American Pharmaceutical Association is located, the subject was given careful consideration at the San Francisco meeting of the Association, resulting in instructions that the Committee on Publication decide the location and the committee was given power to act.

The question was discussed from every advantageous viewpoint for the Association and resolved itself largely into one of finance. The vote finally resulted unanimously for Philadelphia, the city around which, with its sister cities of the east, New York, Boston and Baltimore, the early history of the American Pharmaceutical Association is centered. Quite a number of other cities, in a helpful spirit, offered a home for the editorial office and throughout exhibited a desire to consider the interests of the Association paramount. The offices will be located in the rooms of the Philadelphia Drug Exchange, Bourse Building. While the change means more to the Editor than anyone else, for reasons that need not be cited, he cheerfully accepts the decision, because his expressed desire has been to be of service to the Association, believing that the interests of the organization deserve first consideration.

The prosperity and success of the Journal means much to the Association, and every member should contribute such assistance as he can render. First, enlarged membership strengthens the Association numerically and financially and insures more efficient and better service to pharmacy. Everyone can render assistance along these lines; there is hardly anyone who, if the desire is sufficiently strong, cannot secure at least one new member for the Association. This will also help the Journal.

There is another way that each member can exert an influence. The Journal only accepts advertising that can be endorsed. It is extremely doubtful that any other kind will ever be found in the Journal, but if this should occur, it is the duty of the members to advise the Committee on Publication, and they can be assured of prompt action. Therefore, your patronage of *your* patrons in the Journal should be forthcoming; you will have an opportunity, at least, of letting advertising patrons know of your appreciation of their business. Apprise them of the fact that you have read their message in the Journal. This much encouragement everyone can give. Some can persuade others to advertise and such assistance will be highly appreciated; and by contributing to the income of the Journal the expense of publication will be reduced—and it will make further improvement in the Journal possible.

Many schools of pharmacy patronize the pages of the Journal throughout the

year, others during a few months. The revenues and the possibilities of schools differ, and hence we have no desire to praise one above the other. This comment may be made, however, that the American Pharmaceutical Association is an ardent supporter of the schools, it has largely made them possible; at any rate, this organization is engaged in the same mission, namely, to elevate pharmacy, so that even if the returns from an advertisement amounted to little directly, there is an indirect value, traceable in many directions. We hope the coöperative spirit will become more evident. We are thankful to the schools that have favored the Journal and solicit the support of all the others.

After the minutes and papers of the several Sections of the Association have been printed, there will be need of contributions, and these are acceptable now. The Journal is desirous to coöperate with the Branches of the A. Ph. A. in every way and contributors of articles are invited to send in their papers as early as possible, and when discussions have brought out a valuable point these should accompany them. The Editor takes this opportunity of thanking the secretaries for their promptness and good reports. The situation has not been convenient, but when the Journal is located in its new home, there will be no cause for complaint, if such existed.

Finally, the Editor, and he doubtless can speak for the Association, desires to thank the members of the Association in Columbus, the Midland Publishing Company, Professor George B. Kauffman and Miss Anna G. Bagley for the helpfulness and courtesies, which they have always extended. While the Stoneman Press Company performed its duties under contract, it has throughout evidenced an active and commendable interest in the publication of the Journal.

E. G. E.

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A DIFFERENCE OF OPINION STIMULATES PROGRESS.

A STAUNCH and loyal member of the American Pharmaceutical Association gave us the substance of a letter the other day, which he had received from another good friend, in which the latter apologized for differing in opinion with the former. The thoughtful answer of the former has prompted this brief editorial.

One of the greatest and most beneficent aids to progress in our Association and in every other activity, is the fact that we do not think alike about everything, provided of course, that discussion is not for contention or dispute alone, but prompted by a sincere purpose or conviction.

We should have definite opinions about things, and if they are of sufficient importance, or we truly believe them to be, then we should stand stout-heartedly by such opinions and bring them to a conclusion in real accomplishment. Many have brilliant thoughts, splendid plans, but if they are not fostered until they develop into serviceable results, they may be hurtful, rather than beneficial.

If nobody disagreed with us or everybody agreed with us, then we would soon become lethargic, or if so wonderfully adept, a superabundance of duties would be consigned to us. If a well-balanced, enthusiastic member does not think as another, who has made a conscientious study and analysis of the subject, then defects, if any, will be pointed out and thereby the proposition is

perfected or the conclusions proven to be sound and applicable for the intended purpose—both are helped by the discussion and the benefits will probably reach others or the Association in general.

Not only should we be thankful that everyone does not think as we do on all subjects, but we should encourage thorough investigation of plans and purposes intended for adoption by the Association or those now in operation. E. G. E.

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THE RETURN OF ALLIUM.

MANY of those who participated in the revision of the Pharmacopœia and by their vote excluded quite a number of drugs, will doubtless wonder if not quite a few of these will be reinstated in the practice of medicine, now that the scarcity of some drugs has become very pronounced. A drug milling firm, in this business for many years, during the past month sold out their interests because the supply of drugs was too limited for profitable business.

Without specific references at hand, we are not in position to give historical data relative to the use of garlic as a remedial agent, at any rate as far back as 1600 the juice of garlic was employed to prevent and cure the suppuration of wounds, and its many other curative properties were extolled as far back as we have authentic records.

The Revision Committee of 1900, without a strong dissenting voice excluded the drug, but now the medical profession will have to give respectful attention to garlic, for its efficiency is vouched for by the London "Lancet" on the testimony of several eminent London physicians and the reports from the Paddington Infirmary in London, field hospitals in France and elsewhere.

The rediscovery is credited to a peasant woman of France, who cared for many wounded soldiers and with such remarkable results that her treatment was investigated by army surgeons and the discarded garlic has deservedly won its return to the materia medica.

An investigation is in order and perhaps the near relative, Allium Cepa, may possess medicinal virtues as much alike as the odor which strengthens their relationship. On the battlefields of Europe, many of the old household remedies are being largely employed, in most instances by compelling necessity. This much, however, may be said, that after the termination of the hostilities there will be many interesting reports from field hospitals, that will furnish abundant material for research. E. G. E.

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IS PELLAGRA A SOCIAL OR MEDICAL PROBLEM?

IT IS not in our province to discuss diseases or even therapeutics, but if pellagra presents a social problem according to the conclusions of Dr. Goldberger, which have the indorsement of the Public Health Service, then a brief reference may not be out of place in these pages.

The Southern Medical Association met in Dallas last month, and the subject of pellagra was an important one. Not only were interesting papers dealing with the dreaded plague read before the Convention, but quite a number of unfortunates were present at the clinics held during the week in several of the

hospitals and at Baylor Medical College. Although the disease has been known in this country less than ten years, it has become one of the most industrious agents of death, especially in the South. While in other southern states pellagra is more prevalent, the number of cases in Texas is placed in the neighborhood of 35,000. It therefore deserves all the study that is being given to it, and in which we as citizens, if not otherwise, are interested.

Dr. Roberts of Atlanta, Ga., stated that it requires a very sanguine mind to say anything optimistic about pellagra and compared the futile attempts of medical men to acquire some knowledge as to what the disease really is and how to treat it, with the chasing of a rainbow by children. He believes that when the real cause is discovered, if ever, it would be found to be due to a parasite or a poison.

The parasite theory is studied by many and some of the records cited would point in that direction. The use of thymol and oil of chenopodium seems also to have been beneficial in some cases. The suggestion of a poison, as a cause, would not destroy the argument of Dr. Goldberger, whose studies and observations have convinced him that the disease is caused by an unbalanced diet, a diet lacking in proteids and that both prevention and cure are to be found in the balanced or varied diet.

Not all experience substantiates Dr. Goldberger's theory, but it is at least a very plausible one and comes nearer to being substantiated than any other hypothesis advanced. E. G. E.

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IMPORTANT HARRISON LAW DECISIONS.

PROOF is no longer mandatory to establish the fact that the Harrison law has been instrumental in largely reducing the number of drug addicts. Therefore it would be unfortunate indeed, if the United States Supreme Court wll hold the same opinion or apply the same construction to Section 8 of the Harrison law, as rendered by Judge Wilbur F. Booth of Minneapolis in the case against one Charles E. Jennin, and in effect holding him guiltless of unlawfully having in his possession some of the proscribed narcotic drugs, because he was neither a recognized dealer, agent or dispenser of the drugs in question.

Court opinions have little value until the final verdict is rendered by the highest tribunal. The argument on which the decision was based and rendered in the case referred to is surprising to those who are not familiar with the technicalities of the law. Such construction, as we view it, would imply that while persons required to be registered under the law may have unlawful possession of the inhibited drugs, those not required to be registered, and not registering, would be guiltless though they were in possession of large quantities of habit-forming drugs. In other words, it would penalize those who in every possible way discourage drug addiction and probably encourage a scheming class of venders, who for gain are willing to pander to one of the lamentable weaknesses of human nature. National legislators instead of strengthening the law by naming those who are legally authorized to deal in and dispense the prescribed drugs, if Judge Booth's conclusions are correct, have in reality though inadvertently prepared a

way for violating the intent of the law, without being guilty of punishable offense. Conditions would soon be worse under the law than they were before its passage.

Judge Booth is not alone in his opinion, for similar conclusions have been reached by other judges.

Another important Harrison law decision was recently rendered by Judge D. P. Dyer of St. Louis by sustaining a demurrer in a case against a physician, who was indicted for alleged violation of this law. Judge Dyer contends that the physician did not violate any law through writing prescriptions, because he did not personally dispense the drug. Also, the judge took the attitude that the Harrison anti-narcotic law is not of sufficient force to compel physicians to register prescriptions of narcotic drugs, because there are no penalties provided for failure to register.

Judicial tests are necessary to perfect the enactment and viewing the situation in this light, it may be for the best that these questions have been presented in court. It is hoped however that the importance of this measure in restricting drug addiction will prompt speedy legal progress, so that the Supreme Court may soon decide whether these opinions are well founded or not. If they are, then adequate amendments are imperative; if not, then a valuable and essential precedent will be established. E. G. E.

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CHRISTMAS GREETINGS.*

Christmas is the day when the heart of man opens to joy and happiness. He, indeed, must be an incorrigible grouch or inveterate pessimist who cannot forget his own imagined misery at this time of universal rejoicing. From the old Germans or Scandinavians who celebrated the recurrence of the New Year after the shortest and darkest days had been passed, and made the evergreen hemlock of the North the emblem of the never-dying life of nature, this beautiful custom was taken over to the Christian era. Although pious priests substituted the birth of Christ for that of the revival of Spring, mankind never forgot the deep and thoughtful meaning of the day, and today, Christmas, in spite of its name, has long ceased to be a Christian festival alone. The green hemlock, with its gifts and glare, shines in every house, and its splendor brings happiness to young and old, to the infidel and the faithful, to all men without distinction of religion. For there is no other blessing so human and universal, so completely alike in the palace and the hovel, as the blessing of seeing others happy and contributing to their happiness. This desire to shed and spread happiness among our fellow creatures breaks forth in full beauty and clearness at this joyful time and nobody can resist its benign influence.

Let, then, this blissful feeling also enter our homes and open our hearts in the desire of giving and spreading happiness around us. We all need this change in our accustomed mode of thinking and acting. Let us, at this time of joy and blessing, forget the worries and troubles of business and cast aside the cares, most of which will suddenly appear imagined and unreal. There is much in life to be thankful for. Instead of trying to grasp and accumulate, let us give and distribute. Instead of hunting greedily for the glittering, deceptive

* A message from the President of the American Pharmaceutical Association.

phantom of wealth and fortune, let us turn to others that need aid and happiness more than we do. Let us bring cheerfulness and content into our homes, among our friends; they have the nearest claim to our liberal hands and minds. Let us recall the beautiful days of our childhood, when happy expectancy made our hearts throb louder, and the brightness of our eyes and the flush of our cheeks betrayed our feelings.

And, brother pharmacists, at this happy, festive time, do not forget the best and noblest friend of all, the friend that has clung to us faithfully and lovingly through our whole life, to whom we owe all our success,—our profession. We all owe Pharmacy more than we admit, than we imagine. To the true and loyal disciples, Pharmacy stands forth like the common benefactor, the mother of our thoughts, our hopes, our ideals. Readily and amply she has strewn her gifts on us, encouraged our plans, strengthened our hopes, increased our energy for broader and nobler work. And more than others have we, the members of the American Pharmaceutical Association, received and accepted this blessing, and from year to year drawn new courage, new inspiration, new hope from her. Put, therefore, the name of this beloved benefactor, Pharmacy, on the list of those that you will make happy. Prepare a gift for her by devoting a small particle of your time, your thoughts, your earnings to her benefit. Tell your neighbor, your friend, of the many benefits you have derived from her; do not be afraid of talking in boastful words, in ideal descriptions; you cannot exaggerate. Keep on talking with the strength of conviction, the power of persuasion until you have enlisted him in our ranks. Thus, by gaining a new member, you may partly repay the blessings that Pharmacy has given you and present her with a graceful Christmas gift of your gratitude.

To many of my friends in the Association this Christmas appeal may appear childlike or too glowing, and they may smile at it. But I pray you, read it again at the night of the shining hemlock tree, when your home resounds with the clang and shout of Christmas happiness, when your heart is ready to forget the harshness and cold of the daily toil and is willing to join in the sweet, innocent happiness of your beloved ones. And if at that moment a spirit of thankfulness and gratitude to your dear friend Pharmacy creeps into your heart, keep it there, nourish it, and let it bear beautiful fruit, gratifying to yourself, blissful to your profession.

WILLIAM C. ALPERS.

LIST OF MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION ENJOYING A DAY IN DENVER.

1, A. Bolenbaugh, Richmond, Va.; 2, R. H. McKenzie, Denver, Colo.; 3, Frank H. Spiller, Gardner, Ill.; 4, H. Engelhardt, Baltimore, Md.; 5, F. B. Haymaker, Wheeling, W. Va.; 6, F. L. McCartney, New York, N. Y.; 8, C. D. Charles, Denver, Colo.; 9, Miss Ruth Mahnke, Sioux City, Ia.; 10, J. W. England, Philadelphia, Pa.; 11, Miss Gertrude Scherling, Sioux City, Ia.; 12, W. G. Gaessler, Ames, Ia.; 13, Dr. Joseph Weinstein, New York, N. Y.; 14, W. F. Thebus, Denver, Colo.; 15, Mrs. W. C. Alpers, Cleveland, O.; 16, Robert Lehman, New York, N. Y.; 17, I. C. Arledge, Omaha, Neb.; 18, Mayer Mishkin, New York, N. Y.; 19, Julius A. Koch, Pittsburgh, Pa.; 21, Mrs. Robert J. Wetzlar, Peoria, Ill.; 23, Mrs. Robert Zimmerman, Peoria, Ill.; 24, Robert Zimmerman, Peoria, Ill.; 25, Miss Gretchen Zimmerman, Peoria, Ill.; 26, H. C. Christensen, Chicago, Ill.; 27, E. T. Boden, Bay City, Mich.; 28, E. G. Eberle, Dallas, Texas; 29, Martin Larson, Callender, Ia.; 30, Charles J. Clayton, Denver, Colo.; 31, H. E. Hepner, Denver, Colo.; 32, Joseph P. Remington, Philadelphia, Pa.; 33, Wilbur L. Scoville, Detroit, Mich.; 34, W. B. Day, Chicago, Ill.; 36, W. A. Hover, Denver, Colo.; 37, Edward L. Scholtz, Denver, Colo.; 38, Mrs. H. M. Whelpley, St. Louis, Mo.; 39, Dr. H. M. Whelpley, St. Louis, Mo.; 40, Gustav Scherling, Sioux City, Ia.; 41, Dr. James H. Beal, Urbana, Ill.; 42, J. G. Godding, Boston, Mass.; 43, Mrs. W. C. Anderson, Brooklyn, N. Y.; 44, Mrs. F. B. Haymaker, Wheeling, W. Va.; 45, F. W. Nitardy, Denver, Col.; 46, Mrs. Lincoln Wilson, Denver, Colo.; 47, W. C. Anderson, Brooklyn, N. Y.; 48, Mrs. J. G. Godding, Boston, Mass.; 49, Mrs. Wilbur L. Scoville, Detroit, Mich.; 50, Mrs. Thomas D. Gregg, Harrisburg, Ill.; 51, Miss Kittie Ramey, East St. Louis, Ill.; 52, Mrs. J. H. Beal, Urbana, Ill.; 53, Thomas D. Gregg, Harrisburg, Ill.; 54, Dr. A. H. Vordick, St. Louis, Mo.; 55, Mrs. Vordick, St. Louis, Mo.; 56, Dr. W. C. Alpers, Cleveland, O.; 57, Mrs. Otto F. Claus, St. Louis, Mo.; 58, Seward W. Williams, Chicago, Ill.; 59, Mrs. J. H. Robitschek; 60, Miss Catherine H. Taylor, Richmond, Va.; 61, Dr. John L. Turner, Brooklyn, N. Y.; 62, Miss Nannie Vaden, Richmond, Va.; 63, Mrs. W. B. Day, Chicago, Ill.; 64, S. M. Scott, Jr., Terra Alta, West Va.; 65, Mrs. R. H. McKenzie, Denver, Colo.; 66, Mrs. Gustav Scherling, Sioux City, Ia.; 67, Dr. W. F. Rudd, Richmond, Va.; 69, Lincoln Wilson, Denver, Colo.; 70, S. T. Hensel, Denver, Colo.; 71, C. D. Charles, Denver, Colo.; 72, Frank Lord, Denver, Colo.; 73, Mrs. F. P. Thaman, Denver, Colo.

Unfortunately the numbers on and about the individuals did not come out distinctly in the reduction of the photograph. However, a sufficient number are distinct, so the names can be traced. The photograph was loaned by Mr. S. M. Scott, Jr., and the names were supplied by ex-President Caswell A. Mayo.

Members of the party on the "A. Ph. A. Special," while enjoying the hospitalities of Denver members of the American Pharmaceutical Association in the city situated "a mile high." Names on reverse side of this illustration.

FREDERICK JOHN WULLING.*

Frederick J. Wulling, President-elect of the American Pharmaceutical Association, is a native of Brooklyn, New York, where he was born in 1866. His father was an architect by profession. When he was four years old his father's family took up their permanent residence in what had been their summer home in Carlstadt, New Jersey, a suburb of the American metropolis, and there the son obtained his schooling in the grades, the high school and under private house tutors. He received business training in New York City during the last year at high school and during the succeeding year.

The young man's ambition pointed his way to college work and to a professional education. In 1884 he accepted a position with college privileges with Dr. C. W. Braeutigam, taking up the study of medicine, giving part of his time also to translating from German, French, Spanish and Italian technical journals. Soon he showed great proficiency in pharmacy, to which he subsequently gave most of his attention, and to such end that he had passed the senior examinations in pharmacy and its allied branches before the examining boards of New York and Brooklyn and of New Jersey when he was graduated from the New York College of Pharmacy in 1887. His leadership is indicated by the fact that he won by competitive examination a senior scholarship, and that he was graduated at the head of his class, receiving the gold medal and an analytical balance for supremacy, and from another source one hundred dollars in gold for high scholarship. Meanwhile, he had been attending lectures at the College of Physicians and Surgeons of Columbia University, though not as a regular matriculate. In addition to his scholarship honors the young student was also, for the last year of his course in the College of Pharmacy, a lecture assistant to Professor P. W. Bedford. In 1887 he was elected to a full instructorship, and the course of his life was definitely laid out.

In 1890 he was made assistant professor of pharmacy in the college from which he had been graduated, and the next year he was made professor of inorganic pharmaco-diagnosis in the Brooklyn College of Pharmacy, and he remained in this position until he was called to the deanship of the College of Pharmacy which he was to establish in the University of Minnesota. Meanwhile, he was becoming known in the universities of the Old World. Immediately after his graduation in 1887 he made a tour of Europe, visiting the principal seats of learning on the continent, among them, Munich, Berlin, Goettingen and Paris. Then he returned to America and took up further post-graduate work in the Hoagland Laboratory of Bacteriology with Doctor Lennox. Two years later, in 1889, he went again to Europe on a study and observation trip studying especially the methods of teaching chemistry in the leading German universities.

The name of Frederick J. Wulling will always be inseparably linked with that of the College of Pharmacy in the University of Minnesota for it was he who organized the college as a distinctive department in 1892, and from the beginning of the department was its dean. Before he was called by the Board of Regents of the University to that institution, Mr. Wulling was already widely known as an authority in his subjects, and was recognized as one of the foremost men of his profession as a student and devotee of research work. He has added immeasurably to that reputation since his connection with the University and has brought honors to his college. During the first five years of his connection with the University he received the degrees of Phm.D., LL.B. and LL.M. This in addition to the degree of Ph.G. He is well known abroad as well as at home, having again made tours of European university cities and research centers, notably those of Scotland, England, France, Belgium, Germany and Austria in 1893, 1896 and 1911.

In 1911 Dean Wulling was sent as a representative of the University of Minnesota to European seats of learning to study their botanical and medicinal gardens preparatory to establishing a similar garden at the University of Minnesota soon after.

His University title is "Dean of the Faculty, Professor of Pharmacology and Director of

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* The source of information for this sketch is a "Compendium of History and Biography of Minneapolis and Hennepin County, Minnesota."

the University Medicinal Plant Garden." He is also a member of the University Administrative Committee and of the University Senate.

He has been and is now a frequent contributor to scientific journals, and has published a great number of papers and essays as well as several large works, which include his "Evolution of Botany," his "Medical and Pharmaceutical Chemistry," his "Experiments for Beginners," his "Chemistry of the Carbon Compounds," and other technical works of his profession, with a "Course in Law for Pharmacists."

Dean Wulling is a member of a number of scientific societies, in which he is known as a prosecutor of much original research work. He has been president of the Northwestern Branch of the American Pharmaceutical Association; he is chairman of the Scientific Section of the Minnesota State Pharmaceutical Association since 1904 to date; he has been an executive officer of the American Conference of Pharmaceutical Faculties and in 1914 to 1915 was its president. In addition he has taken an active part in the work of the executive officers of the University of Minnesota; fellow American Association for the Advancement of Science; member of the American Pharmaceutical Association, of the American Conference of Pharmaceutical Faculties, University Club and Campus Club; vice president of the Minnesota Academy of Sciences since 1909 to date; honorary member of the Phi Delta Chi, and one of the Board of Directors of the Minneapolis Society of Fine Arts from 1902 to 1911.

In 1897 Dr. Wulling was married to Miss Lucile Truth Gissel, of Brooklyn, New York. A son, Emerson G., was born in 1903.

DETERMINATION OF ACETONE IN URINE.

After the addition of some drops of hydrochloric acid, 200-250 mils of urine are distilled into a 50-mil flask. To the distillate are added potassium hydroxide and a solution of iodine in potassium iodide. The iodoform is collected on a filter, washed carefully, and boiled with fuming nitric acid and some crystals of silver nitrate in a flask with a cooler. The liquid is diluted with water and filtered. The silver iodide is dissolved in dilute ammonia and reprecipitated with nitric acid, filtered, and washed. The precipitate is brought into a crucible, the filter washed in a platinum spiral, and the ash added to the silver iodide. Some drops of nitric acid are added, and material glowed carefully. By multiplying the quantity of silver iodide by 0.1171 the quantity of acetone can be found—(*Pharm. Zth.: through Pharmaceutical Journal.*)

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-Third Annual Convention

THE MISCIBILITY OF ICHTHYOL.*

JEANNOT HOSTMANN.

Several months ago a prescription, calling for ichthyol, tincture of iodine, olive oil, acacia, and water, was sent to the "query editor" of one of the pharmaceutical journals, accompanied by a request for information as to its compounding. The writer was asked to try it out, and found that a passable "shake mixture" resulted when the ichthyol was triturated with the oil, followed by emulsification *ad lege artis*.

In replying to the querist the word "dissolve" instead of "mix" was inadvertently used. A correspondent called attention to the fact that ichthyol was not soluble in oil and the editor replied that "mixing" was meant and not "dissolving."

The correspondent replied, claiming that ichthyol was "neither soluble nor miscible with oils" and sent along a sample consisting of one part of ichthyol and two parts of cottonseed oil. The appearance of this apparently bore out his statement.

The writer remembered having somewhere seen the statement that "ichthyol was miscible with oils" and examination of the label on the jar of ichthyol in stock found that it read as follows:

> "Ichthyol is soluble in water, or in a mixture of equal parts of water, alcohol, and ether; partially in pure alcohol or ether, miscible with glycerin or oils."

Turning to the "New and Nonofficial Remedies" published by the Council on Pharmacy and Chemistry of the American Medical Association, 1912, 1913, 1914, and 1915, we find the same statement; the "Extra Pharmacopœia" and other reference books also contain the same or a similar statement.

Every pharmacist knows that we rarely come across a substance that is miscible alike with water and oil, yet this statement quoted above has been made for years and apparently without contradiction. I have been unable to find a similar statement in the "Real Encyklopedia" or "Hager's Pharmaceutische Praxis."

Thinking it of enough interest to dispensing pharmacists to merit a little investigation, the samples contained in the two bottles, marked respectively ichthyol and olive oil, and ichthyol and cottonseed oil, were made by triturating the two in a mortar. Their appearance shows that they are not miscible. At first, before separation and adhesion to the sides of the bottle took place, partial suspension

*Read before the Section on Practical Pharmacy and Dispensing A. Ph. A., San Francisco meeting.

seemed to have been brought about, but close observation showed that the ichthyol was present in the form of small globules almost similar in appearance to the globules formed when an oil is violently shaken with water. Complete separation took place very rapidly.

Thinking that different oils might act differently, the accompanying set of "mixtures" was made, using 4 gm. of ichthyol and 16 gm. of each of the various oils. The samples marked 1, 2, 3, etc., were prepared by first weighing the oil into a tared bottle, followed by the ichthyol and then shaking.

The following oils were used: No. 1, olive; No. 2, sesami; No. 3, expressed oil of almonds; No. 4, cottonseed; No. 5, corn; No. 6, lard oil; No. 7, linseed; No. 8, castor. The results with all were more or less alike. It was impossible to mix any of the samples. Noticing, however, that they all acted somewhat different from those made some weeks past, and recalling that the latter ones had been made by trituration, duplicates were made. The samples marked "1a," "2a," etc., were made by weighing the ichthyol into the mortar and gradually adding the oil with constant trituration. Results were practically the same as when the oil and ichthyol were weighed into the bottle and shaken; if anything, the latter were more "miscible," or rather more easily "miscible" than when the mortar was used.

The fact that the separated ichthyol appeared to be more mobile in the recently prepared samples than in the two older ones, led to a comparison of the two samples of ichthyol employed. The sample used in making up the two older samples had been in stock for about one year. It had been kept on the shelf in the well-known glass jar with tin cover in which the article is supplied to the trade. In comparing it with the newer and larger sample, just received from the agent and contained in a glass bottle, it was found that the older sample had apparently lost some moisture due to evaporation, as it was much thicker. Upon heating at 100 degrees to approximately constant weight the loss of the older sample amounted to 35.9 percent, whereas that of the newer was 41.8 percent.

The difference in water content might account for the difference in behavior. Not enough of the older sample being available, this could not be determined. Another rather striking difference is, however, noticeable. The supernatant layers of oil in the older samples practically have their original color. All of the second set are more or less darkened. Apparently a small amount of the ichthyol has gone into solution. This must mean, that either in the old sample of ichthyol other changes than simply loss of water have taken place, or that the ichthyol on the market today is different in some respects from that of a year ago.

While it might be interesting to enumerate the slight differences in behavior as to this discoloration as well as to that of the separated ichthyol in the different samples, I do not think it important enough to discuss same in detail. Comparison of the samples will speak louder than words.

Ichthyol is a proprietary article. The Council on Pharmacy and Chemistry of the American Medical Association issues the New and Nonofficial Remedies as a guide to physicians in prescribing these so-called "newer remedies." I therefore feel that such a statement as quoted above is misleading and might easily lead to serious misunderstanding between physician and pharmacist as well as to loss and suffering to the patient.

Ichthyol is *not* miscible with oils and a physician writing for a mixture of ichthyol and oil would obtain an entirely different product from what he had been led to expect by the statement appearing in the "N. N. R.," as well as on the label of the ichthyol containers and the literature put out by the manufacturer thereof.

COLUMBIA UNIVERSITY COLLEGE OF PHARMACY, August, 1915.

ARRANGEMENT OF THE PRESCRIPTION DEPARTMENT.*

H. W. WEED, NEW YORK.

The modern druggist is as far away from the "mysterious" in regard to the conduct of his prescription department as he is far away and different in his method of store merchandising when compared to the apothecary shop or drug store of ten or fifteen years ago. Therefore it is not to be wondered at that improvement in arrangement, fixturing and equipment in the modern prescription room has undergone many changes to keep pace with the demands of the progressive merchant.

The object of this paper is to suggest to the members of the American Pharmaceutical Association who are contemplating changes in their prescription department a few suggestions which seem to the writer worthy of consideration.

First, let us think for a moment of the actual needs of the smaller merchant, the store doing in the neighborhood of $25,000.00 a year. These stores to make money necessarily have to be clerked with economy; hence the proprietor generally alternates with his one prescription or head clerk, as he is generally termed. To remove the prescription department in such instances to the back part of the store across the back or in either corner is bad for service and should not be done. If any reader's store is thus arranged, I would suggest you change at your earliest convenience to a position of the drug counter which should be located not more than half way back in the store, and so constructed that the prescriptionist could have a good view of the store. This statement will shock some of the straight-laced ethicals, whose "Safety First" ideas call for isolation, concentration, uninterruption, etc., all necessary factors to be insisted upon in the conduct of large departments employing many men whose total daily output of prescriptions compounded will reach or exceed two hundred and fifty. There, such discipline is necessary. Please do not misunderstand me. I am not belittling dignity or safety, but we are considering the one man proposition in the smaller town or the neighborhood druggist, who, because of the smallness of his business, is obliged to be general clerk as well as prescriptionist; hence the necessity of constructing, arranging and locating this department so it will fit into the merchandising scheme in such a way that the proprietor or head clerk has general supervision of the whole store at all times. The result of this arrangement will be satisfied customers, increased business and a competence worthy the calling, because the mas-

*Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., San Francisco meeting.

ter hand and mind is in the midst of things and not separated by an unwise choosing of location for this department.

The amount of space required would be 4 ft. long by 18 in. deep and 6 ft. high, running lengthwise of the store and should be a part of the drug counter, which is, as you know, a fixture 30 in. wide by 36 in. high. This would give plenty of room in front of the upright for display purposes. I am opposed to zinc covering for the work board, glass is always preferable, and this ¼ to ⅜ plate. The arrangement of drawers, width of shelves, etc., should be carefully thought out by the owner, avoiding always big drawers, as they invite untidiness and waste of room. In one corner of the work board should be a very small sink about 6 by 9 inches, fitted with gooseneck faucets for hot and cold water. The majority of my readers may think these dimensions too small, but can you wisely devote more space?

As stock turnover is also necessary to success, I counsel the purchase of drugs in small quantities. Therefore, in ordering prescription ware, I would not buy any salt mouth bottles larger than four-ounce and only a limited number of them.

The care and filing of prescriptions might just as well be considered here, for the following plan is the best and most applicable for all prescription departments, regardless of size and number compounded. This method enables immediate reference to any number desired, takes up little space, as you will see. The arrangement is to have cardboard boxes made 4⅜ wide by 6½ long by 2⅛ deep outside measurements, not including covers. Procure some thin bookboard, have same cut 6⅛ long by 3⅛ wide, have a small hole punched in these cut pieces in the center about half an inch from one end. A pair of these bookboards will form the top and bottom of the prescription file, the scheme being to place one hundred prescriptions between the covers, bind them loosely with a single string which will make a sort of loose leaf arrangement, with one hundred prescriptions to a book and five books to the box, and two boxes deep on a shelf. By this method you will have in time a perfect metric system of filing; every two boxes containing one thousand prescriptions. The writer saw a cabinet of twenty thousand prescriptions filed in this way and was amazed at the small space occupied by so many prescriptions and the ease with which any number could be selected. The shelf arrangement should be built to accommodate but ten boxes wide and two boxes deep. Therefore, the first shelf would hold prescriptions numbering from one to one thousand; second shelf one-thousand-one to two thousand; thus a cabinet with ten shelves would accommodate one hundred thousand prescriptions. The system of numbering and pricing is, numbers always in the lower left-hand corner, prices in lower right-hand corner.

Where the business of a store warrants the steady employment of two or more prescriptionists who give their entire time to manufacturing and prescription work, the location of the department may be in a space least valuable for merchandising purposes, preferably in a space next adjoining the rubber goods or sick room supply department, for the reason that the prescription department is the natural and almost exclusive feeder to this allied department, and if this department is merchandised properly and properly clerked, the business of this department will grow and become the most profitable part of your whole store.

Have you ever stopped to think, when a prescription is brought into your store, it should be thought of as a certificate of information signed by the doctor, conveying to you the knowledge that there is sickness in the home of the bearer, and, where sickness is, there is every possibility that many sick-room supplies may be required, and the very opportunity you are seeking is at hand? Perhaps you can tell by the medicine prescribed somewhat the nature of the sickness in the home. If not, a few simple inquiries will give you the idea of what to suggest in the way of sick-room supplies. The present method of handling prescriptions is all wrong, according to the writer's notion of merchandising. Did you ever know of a perfectly well person wanting a pair of crutches or a bed back-rest or a bed-pan, a sick-feeder, or a gruel tube? You have probably said a great many times when handing out a prescription after filling it, "Who is sick up at the house?" You have been told by the mother or father, or James or John, or whoever brought in the prescription, and the only comment made is, "I am sorry; tell them I inquired after them; hope they will not be confined to the house long." Where, if you applied the art of salesmanship, it would be the most natural thing in the world to say, "When father gets so he can sit up, you better come down and get him a back-rest or an invalid's wheel chair, so that he can begin to get a little exercise and sunshine." Just that moment you begin to bring the prescription department into closer relationship with your rubber goods and sick-room department. Just that moment you will begin to get enthusiastic over this suggestion the writer is making and by giving it some thought and by letting your imagination work along these same lines, you will see what's in the writer's mind when he urges upon you to link these two departments together.

Labels and copies of all prescriptions should be typewritten.

No person other than the man on the job can lay out a suitable or workable floor and fixture plan without careful data as to size and shape of store, together with an estimate as to the amount of business expected to be done, the population of the town, also whether the M. D.'s are prescription writers or dispensers. However the experience of others is valuable and a suggestion from this one, an idea from another helps a fellow solve the problem of the best for his particular store. So it is with the hope this brief article will help some brother to better things, as it surely will if some of the suggestions are adopted, for they are not experiments, but the result of experience.

ABSTRACT OF DISCUSSIONS AND REMARKS.

Chairman Osseward: I saw in one of the papers that Mr. Liggett had made an address before the Philadelphia branch of the American Pharmaceutical Association on "Modern Merchandising," and the paper appealed to me. So I got the idea of writing Mr. Liggett and asking him to prepare a paper. I thought it might bring out the point that he would have some of his men give us a paper. Mr. Liggett told me as he was not a practicing pharmacist, but a merchandiser, that he could not comply with my request. I then wrote Mr. Liggett and asked him if he would not have one of his men give us a paper, and this is the result.

There are several points in it that are valuable, it seems to me. The idea of placing the prescription department in the center of the store was a new thought. Of course, he is speaking of a small store now; this does not mean a large store. It does not mean those who have a good prescription business. He suggests making the prescription department more prominent, placing it where you can watch both ends of the store, especially where there is only one man in the store most of the time. These are very valuable suggestions.

Dr. Weinstein: I do not see what I could learn from this. This is the arrangement in most of the stores. The difference is that most of the stores do not do $2,000 a month. There are stores in New York that do $2,000 a month or say $25,000 a year, but most of the stores would be happy if they could do so.

Mr. G. H. P. Lichthardt: It seems to me that the valuable part of that paper is the suggestion as to salesmanship. It is brought out very forcibly. I never realized when Jimmy came in with a prescription for an old gentleman with the rheumatism that possibly he might want a water bag. I know that I could not hold a job in a chain store because I could not do that. I would get fired the next week. But that is evidently the great point in that paper, to my mind.

Mr. F. W. Nitardy: The way that paper is written, you can see that it is by a man that considers dollars and cents in the drug business. He is a merchant and he is a business man, and his eyes are open for getting the dollars. We have got to do that, even though we like to be technical pharmacists.

I have been told lots of times that I am not a business man at all; that I am a scientific man. I do not lay any claim to that; I try to be a business man; that is the way I make a living.

I think there is a lesson in that paper. I don't agree with Dr. Weinstein that he cannot see anything new in the paper. I think it sets us a good example. I greatly appreciate the idea of Mr. Liggett.

MAGNESIUM CHLORIDE TO STIMULATE CYTOPHYLAXIS.

The property possessed by living cells of protecting themselves from infection is named by the author cytophylaxis. The favorable action of the majority of antiseptics used is due not so much to their killing the harmful micro-organisms, but to their allowing the process of cytophylaxis to proceed. This is mainly due to the action of phagocytes. Unfortunately, the majority of those antiseptics which kill the harmful germs, at the same time destroy, or hinder, phagocytosis. Even in the most favorable cases the number of phagocytes is reduced by 80 per cent. This explains the lamentable number of failures which follows the use of antiseptics when applied to infected wounds. The problem of killing the microbes without injuring the living cells has not yet been solved; but many antiseptics are known which destroy the cells without with certainty destroying the microbes with which they are mingled. The author has therefore experimented with a number of non-antiseptic solutions which stimulate phagocytosis. Of these magnesium chloride, in the proportion of 12.1 per 1,000 is one. This solution increases phagocytosis 75 per cent. compared with physiological salt solution, and the latter is 63 per cent. more active than Ringer-Locke's serum. The augmentation is observed not only in the number of active polynuclear phagocytes, but also on the individual phagocytic power of each cell. The solution retains its cytophylactic power when administered by injection into the circulation. It may advantageously be employed in this manner as well as applied locally in the form of dressing.—*P. Delbert and Karajanopoulo (competes rend., 1915, 161, 268), through Pharmaceutical Journal.*

Contributed and Selected

A REVIEW OF PHARMACEUTICAL LITERATURE.*

JOHN K. THUM.

It may be of interest to pharmacists to know that not only are some of the better class of newspapers showing a growing disinclination to advertise patent medicines, but they are also beginning to discuss the proprietary evil. The *New York Sun* reported an address delivered by Prof. Francis Carter Wood before the alumni of the College of Physicians and Surgeons, and in its editorial columns commented quite freely thereon. The gist of the *Sun's* editorial is a warning to the public to shun the proprietary-prescribing physician.

It impresses in unmistakable language the possibilities of harm to the patient in the acceptance of prescriptions from medical men who are too indolent or unscientific to think out and write their own prescriptions; who know nothing of the composition of what they prescribe except what the proprietor chooses to tell them, and who certainly have not the time nor the knowledge to find out if the manufacturer is telling the truth. It goes on to say that we "trust the doctor because we know him and that this trust is misplaced if he prescribes a drug the composition of which he does not know."

That the newspapers could be of considerable influence in correcting this evil goes without saying, but their interest must become more general.—Editorial, *New York Sun*, October 7, 1915.

The Assay of Balsam of Peru:—The authors of this paper state that for the assay of this balsam, a number of tests have been proposed, and are to be found in the various pharmacopœias and similar publications; that those depending on color reactions are usually unreliable and of limited value. Much stress is laid on the acid value, saponification value, cinnamein content and its saponification value; that the determination of these constants is generally required by the best authorities and yet it is obvious, they add, that such values are far from being absolutely characteristic, that they are insufficient to demonstrate the purity or authenticity of a sample is a fact unpleasantly brought to their attention by the appearance in recent years of imitation or "synthetic" balsams almost indistinguishable from the natural product.

In a thorough examination of balsam of Peru made by Thoms there was isolated, among other things, a new alcohol, peruviol. This compound, a light liquid with a characteristic odor, was subsequently found to be identical with nerolidol, the sesquiterpene alcohol isolated by Hesse and Zeitschel from the high-boiling fractions of oil of orange flowers.

The authors believe that peruviol, with its high iodine value and dextro-rotation, is the most characteristic constituent of the balsam, and they advise the following simple method for isolating it:—

Peruviol Test: 20 grams of balsam are saponified by heating one hour on a water-bath, with frequent shaking, in a liter flask, with 20 grams of 25 percent potassium hydroxide. Steam is then passed through the mixture, and the distillate collected in 100 or 150 cc. flasks with narrow, graduated necks. From natural balsams there is obtained in this

*Read before Philadelphia Branch, A. Ph. A., Nov. 9, 1915.

manner, in 300 cc. total distillate, from 0.7 to 0.9 cc. of light oil. Imitation balsam gives only traces of heavy oil.—By Francis D. Dodge and Alfred E. Sherndal, *Journal A. Ph. A.*, October, 1915, page 1222.

Quizzes, Tests and Examinations:—Repeated arguments against final examinations as a means of judging the ability of a student have failed to convince the writer of this paper that the time is ripe for their abolishment. They are the best incentive a student has to stimulate his interest and make him strive to do his best. But that best should not be postponed until just a few weeks before final examination. There should be consistent daily application on the part of the student. "There is no short road to success." There never was and never will be! The author's experience in teaching has convinced him that the most practical method of making students study all during their college course is to put quiz work on the basis of frequent written tests.—By H. V. Arny, *Journal A. Ph. A.*, October, 1915, page 1233.

New and Non-official Remedies:—The Council on Pharmacy and Chemistry of the A. M. A. have accepted histamine hydrochloride, the hydrochloride of the base beta-iminazolyl-ethylamine (histamine). Histamine is closely related to histidine, from which it differs in that one molecule of carbon dioxide has been eliminated. Histamine hydrochloride has a powerful contractile action on certain muscular fibers and a strong vasoconstrictor action. The available evidence does not warrant a recommendation for its therapeutic use, but it is a valuable reagent for the standardization of pituitary and similar preparations.

Mercurialized Serum has also been accepted by the same body. It is a solution of mercuric chloride in normal horse serum, diluted with physiologic sodium chloride solution. It is claimed to be of value in the treatment of syphilis, particularly of the cerebrospinal type. It may be given intravenously or intraspinally.—*Journal of A. M. A.*, October, 1915, pages 1367, 1185.

The so-called Concentrated Solution of Silver Iodide:—The writer of this paper states that there is on the market at the present time a so-called soluble preparation of silver iodide. That is to say, the silver iodide is in concentration in the form of a solution and the addition of this solution to a designated volume of water makes a 5 percent suspension of silver iodide. Whether this method of dispensing silver iodide possesses any advantages over the usual method is questionable. In the writer's opinion it would be far safer for a patient to receive a freshly prepared precipitate of this chemical, well washed, and held in suspension with the aid of a solution of gelatine, Irish moss, or some other appropriate gummy substance.

This solution of silver iodide is made by taking advantage of the fact that silver iodide is soluble in an excess of potassium iodide.

One of the claims made by the manufacturers of this preparation is that "it is less expensive" than preparations of the same salt sufficiently diluted for immediate use. When one considers that the solution of this salt requires a considerable excess of potassium iodide (the preparation on the market showing on analysis at least 60 percent of free potassium iodide), and then considers the price of potassium iodide even in normal times, one is averse to agreeing with this statement.

It is also well to remember that potassium iodide as found on the market is usually quite alkaline and while it may be true that such a preparation is painless when introduced into the urethra, that does not prove that it is harmless. It is also well to remember that suspensions of silver iodide are frequently used in eye infections, and for that purpose should be very carefully prepared, the silver iodide first being very carefully and thoroughly washed with sterile distilled water. If this technic is not followed, the application of the preparation to an eye condition will result in much irritation, pain and an inflammatory condition that is difficult to control.

The writer's investigation of this preparation revealed that it can be prepared readily according to the following formula:—

Silver nitrate	3.70
Potassium iodide	17.00
Distilled water to	25.00

This volume of 25 mils solution, when added to 75 mils of distilled water, makes a 5 percent suspension of silver iodide.—By John K. Thum, *American Journal of Pharmacy*, November, 1915.

Detection of Arachis Oil in Olive Oil:—Arachis oil, more generally known as peanut or ground-nut oil, is quite frequently used to sophisticate olive oil. The following method for its detection is suggested: One mil of the suspected oil is heated with 5 mils of an 8 percent alcoholic caustic potash solution for four minutes in a flask provided with a condensing tube. After cooling to 25°, 1.5 mils of a mixture of one volume of glacial acetic acid and two volumes of water are added, followed by 50 mils of 70 percent alcohol. If the solution is turbid, it is carefully heated until perfectly limpid, is then cooled gradually and the temperature at which it becomes turbid is noted. Pure olive oil becomes turbid at 13.5°, that containing 5 percent arachis oil becomes turbid at 16.9°; that containing 10 percent becomes turbid at 19.8°, and so on. The higher the percentage of arachis oil present the higher the temperature at which the suspected oil becomes turbid.—*The Druggists Circular*, October, 1915, page 665.

THE MERITS OF PHARMACY.*

WILLIAM C. ALPERS.

In timid and hesitating mood, pharmacy steps into the circle of the older and more venerable professions, doubtful of cordial reception. Will they welcome her as a legal sister, or will they turn on her as an intruder? It is not much more than a generation that pharmacy has laid claim to full recognition, at least in the United States, and there is still much opposition to this claim. It is said that she lacks the dignity of a science, and is tainted with commercial desires and tendencies. She possesses neither the venerable age of philosophy, nor the majesty of law, neither the sacredness of theology, the benign power of medicine, nor the depth of natural science. She may be an art, an accomplishment, a skill, but no science.

Whosoever looks upon pharmacy in this way knows but little of her merits, and judges superficially. It is true she does not surround her work with outer glare and glitter. In her daily practice we look in vain for the pomp of judicial display, or the incense and music of sacred worship; nor is there the mysterious dignity of medicine. In a modest, quiet way she stands back and performs her duties without ostentation. Other sciences and professions have gone the same thorny path before they found full recognition. It is nearly one hundred years ago,—in 1824,—that a young pharmacist, Justus Liebig, was appointed the first professor of chemistry at a German University. Raised as a pharmacist in his city, and extending his knowledge of chemistry in Paris, under Gay Lussac and Humboldt, he recognized the possibilities of his vocation, and his master mind conceived ideas and inventions that created not only a new science, but also a new industry. The older professors of Giessen looked upon him with ridicule and disdain. Chemistry might be a toy for scientific men,—a science, never! But the young pharmacist, only twenty-one years old, worked patiently along, and before his death he had become a giant among his peers and a benefactor of the whole world.

*Address delivered at a convocation of the Deans of Western Reserve University, Cleveland, O., before the faculties, members, students and friends of the University.

Where chemistry stood then, pharmacy stands today. Chemistry has since performed wonders, but her great achievements were not due to theoretical deductions and philosophical arguments alone. The chemical thinkers, following Liebig's example understood how to apply the results of their minds to practical purposes, to the needs and demands of daily life, and thereby make them popular. It is in this adaptation that the strength and influence of all science lies today. The times of abstract thought and mere philosophical arguing have gone. The sage of the middle ages who pondered quietly in his study and built up around himself a new and beautiful world of mental ideals, has passed away. His writings, understood only by a few, are still the pride of scientific libraries, but their mystic pages are no source of inspiration or power. Knowledge has long ceased to be the mysterious possession of a few, who were looked upon with awe by the wondering crowds. Knowledge, today, is the property of all; it is demanded and given like air or water, common and accessible to everybody. In this general distribution of useful knowledge lies the duty and the power of a university. It is not erudite discourses and essays, however deep and beautiful they may be, that make a school of learning great; it is the ability to use knowledge and science for the benefit of all mankind; to come forth among the people like the distributor of blissful gifts, and spread blessing and happiness among the sick and ignorant.

If these premises are correct, if this conception of the mission of a university is true, pharmacy may safely step forward and claim full recognition. Her teachings are not in the abstract, her doctrines are not those of speculation and theory, her work is not for the few select, but for all, the highest as well as the humblest. She does not stalk about on stilts, nor does she soar to heights unapproachable to the masses. She walks in common garb in the streets and highways, carrying small and humble gifts, that she willingly distributes among the sick and needy. She talks in common words, ennobled only by looks of mercy and depth of feeling. It is not by grandiloquent phrases, but by quiet and effective deeds that she accomplishes her daily task. Relieving the sufferer, healing the sick, soothing the afflicted, are her watchwords, and her days are spent in spreading health and blessing.

This humble work, however, is not done without mental strain and the efforts of thinking minds. In pharmaceutical laboratories all over the world thousands of experiments and assays are daily performed to discover new chemicals, new qualities of minerals and plants, new combinations of older medicaments. A special branch of chemistry has grown up,—pharmaceutical chemistry,—with its own laboratories and apparatus. Such chemical works of enormous size are erected in all civilized countries, and their products, in the form of new remedies, go forth to the pharmacists and from them to the patients. In the schools of pharmacy, assays of plants, microscopic examination of their parts, research in pharmacognosy is the daily work; weeds and herbs, trees with their roots and bark, that nobody noticed nor cared for, are drawn into this sphere, and wonderful properties, formerly unknown, are discovered. As an example, let me mention the well known Cascara Sagrada, the bark of a certain buckthorn, the preparations of which in the shape of fluidextract, pill or tablet, have worked infinite good to suffering mankind. Before the time of pharma-

ceutical research, this plant grew abundantly, as now, in California, but was an unknown shrub that nobody cared for; now, it is a blessing to mankind. And, not satisfied with examining indigenous plants, pharmacy has reached out to other continents, and by her efforts to bring their plants nearer, created a new field for the agriculturist. In the hills of Kentucky, ginseng and hydrastis are now cultivated. Wisconsin and Minnesota produce tons of cultivated mint and other labiates; belladonna and digitalis are now raised on large tracts in California; the fragrant camphor tree, of whose production Japan formerly had a monopoly worth millions, now grows in the swamps of Florida. Daily new medicinal plants are drawn into this scope, and our country with its manifold climates and soil, will soon be independent of the botanical products of Europe, Africa and Asia. Thousands of men are thus employed in the service of pharmacy, from the professor in the schools and the chemist in the pharmaceutical works, to the laborer in factory and field. Here, then, is a profession whose efforts and teachings go back to the people in double blessing,—as a producer of work for thousands and as a reliever of pain and sickness.

The homes of pharmaceutical schools are in most cases small and modest. As a rule, they are private enterprises, supported solely by the tuition of the students. In some of the western states, where the value and merits of pharmacy have been better recognized than in the east, state universities have regularly acknowledged pharmaceutical faculties and the schools are admirably equipped. The students there are on a par with all other students, entering the school with the same preliminary education as those of other professions. In the east and middle west, much remains to be done. Philanthropists have, so far, overlooked pharmacy. With one exception, there was no endowment of any size ever given to schools of pharmacy. Many men have become immensely rich through the products that the humble pharmacists all over the country have sold; but while they give liberally to medicine, law and science, no one ever thinks of pharmacy. This is particularly regrettable in Ohio, Pennsylvania and neighboring states, the states of oil and coal. The pharmaceutical products gained from these two sources are very numerous, and have earned millions for the manufacturers. Would it not be a gracious acknowledgment of the help that the pharamcists have given these wealthy men to endow pharmacy in a suitable manner?

Meanwhile, we pharmacists perform our quiet and humble task. Undaunted by the many difficulties that beset our profession, we continue to do our work in the interest of humanity and civilization, aiding the weak and afflicted, extending the scope of our usefulness and adding our share to that noblest aim of all knowledge and science, the betterment and uplifting of mankind.

THE AIMS AND PURPOSES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

CASWELL A. MAYO.

A meeting of the Philadelphia College of Pharmacy, the Massachusetts College of Pharmacy and the New York College of Pharmacy, was held at the New York College of Pharmacy in 1851 to discuss the problem of improving the condition of the drug market, and preventing the importation into the United States of drugs and chemicals of inferior quality. As an outcome of this conference, a call was issued by the representatives of the three colleges for a meeting to be held at the Philadelphia College of Pharmacy in 1852, with a view to carrying still further the objects aimed at in the conference of colleges and perfecting a permanent organization to safeguard the welfare of the public as to the quality of the drugs and medicines sold, and to correlate the efforts of all those influences which were at work in different sections for the elevation of pharmacy, and the improvement of the quality of the drugs on the market.

It was at this meeting in 1852 that the American Pharmaceutical Association was formally organized. The objects of the Association as set forth in the articles of association show the lofty ideals of the founders of this organization. The following quotation from the constitution shows clearly the objects which are aimed at:

1. To improve and regulate the drug market by preventing the importation of inferior, adulterated, or deteriorated drugs and by detecting and exposing home adulterations.
2. To encourage such proper relations among Druggists, Pharmacists, Physicians and the people at large, as may promote the public welfare, and tend to mutual strength and advantage.
3. To improve the science and art of Pharmacy by diffusing scientific knowledge among Apothecaries and Druggists, fostering pharmaceutical literature, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.
4. To regulate the system of apprenticeship and employment, so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.
5. To suppress empiricism, and to restrict the dispensing and sale of medicines to regularly educated Druggists and Apothecaries.
6. To uphold standards of authority in the Education, Theory and Practice of Pharmacy.
7. To create and maintain a standard of professional honesty equal to the amount of our professional knowledge with a view to the highest good and greatest protection to the public.

With such lofty ideals set forth in its articles of association, it naturally followed that the highest type of men in pharmacy were attracted to the organization. The roster of the officers of the association, from the time of its organization in 1852 down to the present, constitutes an honor roll of pharmacists,

*An address delivered before the Exposition session, Friday afternoon, August 13, by Caswell A. Mayo, retiring President of the American Pharmaceutical Association. On this occasion a bronze medallion was presented to the American Pharmaceutical Association which has been deposited with the Historian.

and to be included is a distinction of which any pharmacist might well be proud. Unceasingly during all these sixty-three years this organization has earnestly, intelligently and unselfishly sought for the elevation of pharmacy, the improvement of the conditions surrounding the pharmacist, and the betterment of the quality of the drugs dispensed by them. This organization and its members have played a most important part in the drafting of regulations governing the importation and interstate sale of drugs and chemicals. This organization and its members have kept close watch on the advances in pharmaceutical technique, in chemistry, in pharmacognosy and in materia medica, and have brought their efforts to bear on the technical problems of the collection, manufacture, preparation and dispensing of drugs and chemicals, to the end that the physicians and the public of these United States might be able at all times to have at their command pure drugs properly prepared and carefully dispensed. Since health is the basic essential for human happiness and progress, the members of the American Pharmaceutical Association as conservators of health, have played a most important part in contributing to the public welfare.

The annual reports which have been prepared upon the condition of the drugs found in the market by expert members of the American Pharmaceutical Association, constitutes an invaluable record of progress in the science of botany, pharmacognosy and chemistry. With the aid of these reports, analytical chemists and expert pharmacognocists, whether acting in their private capacity, as employes of buyers and manufacturers of drugs, or as municipal, state or government officials, have been enabled to materially improve the condition of the drug market, and bring about a great betterment in the drugs offered for sale here.

It was the American Pharmaceutical Association which first awoke to the increasing danger to the public welfare from the indiscriminate use of habit-forming drugs, and as a member of that organization, I, myself, had the pleasure of offering a resolution at the St. Louis meeting in 1901, providing for the appointment of a committee of three to investigate and report upon the increase in the traffic in habit-forming drugs, and to propose some means of safeguarding the sale of these drugs, and preventing the further spread of the drug habit. As a result of this resolution a committee was appointed which carried on an investigation in a number of the larger cities as to the use of habit-forming drugs. Following the report of this particular committee, a committee on narcotic legislation was provided for and appointed. This committee was continued from year to year, making voluminous annual reports, until finally a model anti-narcotic law known as the "Beal Anti-narcotic Law" was enacted to serve as a guide for pharmaceutical legislation throughout the United States. Since that time, something like forty states have incorporated this law, wholly or in part, into their statutes, while portions of it have been included in national legislation, either in the Food and Drugs Act of June 30, 1906, or in the Harrison Anti-Narcotic Act of 1914, or in other special legislation.

In the drafting of the national Food and Drugs Act of June 30, 1906, the leaders of the American Pharmaceutical Association took a helpful and influential part. Their hand is also shown at many places in the rules and regulations promulgated by the authorities charged with the execution of the law.

Its representatives acting through the National Drug Trade Conference, a body consisting of delegates from all of the national associations interested in the drug business, played an important part, it might almost be said, a dominating part, in the formulation of the national Anti-narcotic Act, known as the Harrison Law, and which has done more than any other legislation ever adopted towards the suppression of the illegal traffic in and the misuse of narcotic drugs. In view of the fact that the sale of these drugs is an integral and essential feature of the pharmacist's work, and that the many restrictions imposed and the tax placed upon the pharmacist by this law, diminished his profits and increased his labors, it will be clear that the American Pharmaceutical Association in advocating this law had been actuated only by the highest and most altruistic motives.

When the American Pharmaceutical Association was organized no restrictions were placed about the entry into the sale of medicines and drugs. Largely through the labors of this organization and its members, there now exists in every state in the union, carefully drawn laws, setting up certain qualifications which must be fulfilled by any one undertaking the sale or dispensing of medicines at retail. This alone is a most important contribution to the public welfare, and this service alone would have amply justified the existence of the organization.

But the highest service which has been rendered to the American public by this Association has been the installation into the minds of the pharmacists of the United States of the loftiest ideals of devotion to duty, of self-sacrifice, and of public service. Through its influence, the ideals of pharmacy have been uplifted and maintained. The duties of the pharmacist to the state and to his fellow men have kept ever in the foreground, and through the inculcation of these lofty ideals the American Pharmaceutical Association has influenced the pharmacists of the United States, those who were among its members directly, those who were not members indirectly, making of them better men, better pharmacists and better citizens.

The influence of the American Pharmaceutical Association has made itself felt, not only through its members, but through other organizations in which it has been a factor.

It was under the auspices of the American Pharmaceutical Association that a national association was formed, including all the colleges of pharmacy in the United States. This organization known as the American Conference of Pharmaceutical Faculties, has been an important factor in unifying and elevating the standards of pharmaceutical education; and whatever good has been accomplished by this organization redounds to the credit of the American Pharmaceutical Association, under whose auspices it was organized, and with which it is most intimately associated.

It was under the auspices of the American Pharmaceutical Association that the National Association of Boards of Pharmacy was constituted, including among its membership the boards of pharmacy of practically all the states. Through the work of this Association the standards of requirement for entry into the practice of pharmacy in the several states have been unified and elevated, thus bringing into the service of the public as licensed pharmacists, men of

higher attainments and better equipment for the responsible task of preparing and dispensing medicaments.

The limitations of space forbid the entry into details of what has been accomplished by this organization. But one aspect of its activities might well be accentuated at this particular junction, when the interruptions of commerce by the European war had cut off the source of supplies whence many of our drugs have been drawn heretofore. This particular phase of the activity of the Association is the development of the drug supplies of the United States. Reaching from the tropics to the north frigid zone, with a climate embracing every extreme, with lands of every variety, and varying in elevation from below the sea level to an elevation of 15,000 feet, the United States is capable of producing almost every variety of botanical drugs known to civilization and used in medicine. It is the province of the American Pharmaceutical Association to find and point out to collectors the vast supplies of drugs indigenous to this country, and to point the way and encourage research in the culture of drugs not found here, but which are capable of being grown here, so as to make us independent of the remainder of the world.

Surely an organization whose aims are so lofty, whose work is so unselfish, whose membership is so widespread, and whose members are so loyal in their support of the aims, must be reckoned as one of the important factors in the development of the highest national efficiency of the American people; and it is with pride in the Association and with humility at my inability to adequately set forth its claims to recognition, that I here briefly, inadequately and all too poorly state a few only of the reasons why the American Pharmaceutical Association should rank in the public esteem as among the most beneficent and praiseworthy organizations which have enjoyed the hospitality of the California people, and of the Panama Pacific International Exposition.

A PLEA FOR AN UP-TO-DATE YEAR BOOK.*

E. N. GATHERCOAL, CHICAGO.

The Present Year Book is Largely an Historical Volume Only.—The Year Book consists of two distinct parts, namely: The statistical matter (the constitution, by-laws, etc., the list of officers and committees, the report on the funds of the Association, and the lists of members) and abstracts of those papers published during the year that relate to pharmacy, pharmaceutical chemistry and materia medica.

The statistical matter has no value except of an historical nature after the year to which it applies is ended. The abstracts when more than a year old serve but little other purpose than for "looking up the literature" relating to pharmaceutical subjects.

The Added Values of an Up-to-Date Year Book.—If the 1916 Year Book could be published during the year 1916, it would be not only up-to-date, a condition decidedly worth while, but would possess other advantages.

* This article is published without comment. Every member has an interest in the Association and discussions develop better methods, new ideas and contirbute to the growth and value of the organization to its members.

Membership in the Association is an honor, an empty honor, however, if no one knows about it. The list of members should be also a true directory, but a directory to be of value must be recent. The constitution, by-laws, and rules may be amended or revised at every annual meeting. How worth while it would be to have a complete and accurate copy of these articles within a month or so after the meeting.

The abstracts, if kept up to date, would not only have a much enhanced value for tracing the literature on a subject, but would have a real *reading* value. Readable abstracts, timely and covering the field of pharmacy, not only scientific but commercial, would be a real "drawing card" for the Association.

The Plan.—Print the Year Book in six installments issued either as supplements to the Journal or as a separate publication under the name it now bears. The installments might be issued in January, March, May, July, September and November and each contain the abstracts of the previous two months. In addition to the abstracts the January number could include the Index for the previous Year Book; the March number, the Treasurer's report and report on invested funds; the May number, summary of Council motions since the last annual meeting; July number, lists of members in good standing; September number, the minutes of the general and section sessions; November number, the corrected constitution, by-laws, and rules, and list of new officers and committees.

Binding.—The installments as described above could be so printed that in the bound volume the statistical portion could all be placed in one part of the book or separated into two parts as is done now. The abstracts would, of course, be presented in a number of divisions in each installment as is done now in the whole book, but it would hardly be possible to so arrange these divisions as to make each complete for the year in the bound volume. There is no great advantage, however, in the present rather elaborate arrangement of abstracts. Each subject must be sought through the index, anyway.

If some members preferred to have their Year Book as a bound volume at the end of the year, the Association could retain their installments, bind them and deliver the volume early the following year. Of course, members receiving the installments as issued would bind same at their own expense.

Expense.—The cost of printing and mailing the Year Book in installments would be appreciably less than the present method.

The Year Books for 1914 and 1915.—It will cost the Association at least $7500.00 to prepare the copy, print and distribute, under the present plan, these two Year Books. If the plan as above outlined could be entered upon at once and put into effect for the 1916 Year Book, the January number could be used for the lists of officers and the constitution, by-laws and rules, as revised at the last annual meeting, while the number for next July could contain the lists of members as revised to July 1st. Then there would be nothing left but the abstracts for 1914 and 1915 to be published. These could be prepared and issued in 1916 as two volumes bound under one cover, or bound separately. The cost would be materially reduced and the Association could draw upon the income from the National Formulary to enable it to catch up with its publications.

The Plea.—Why not adopt the above mentioned plan for bringing the Year

Book up to date? If there are objections to certain features, modify them so as to correct the objections. Please discuss the proposition. I appeal especially to the Branches and trust that the subject will be brought up promptly for discussion in each of them. Probably no action regarding such a radical change in the Year Book can be nor should be taken without the concurrence of the Association in annual session, therefore the 1914 Year Book should be pushed to completion and publication and be distributed if possible before the next annual meeting. Other plans for changing the present Year Book may be presented to the Association for discussion. Perhaps out of this discussion the Council can formulate and indorse some plan that will get us up to date and present it to the Association for adoption.

In case of the adoption of this installment plan, the Reporter should become in truth the Editor of the Year Book and should be alone responsible for its issue. He can organize a larger force of helpers—there are many capable members willing to serve—assigning each but one or a very few journals, and requiring prompt reports from each. His duties would be largely editing these reports rather than preparing the actual abstracts.

CONTRIBUTIONS OF THE CHEMIST TO THE MANUFACTURE OF PHARMACEUTICAL PRODUCTS.*

FRANK R. ELDRED.

The manufacture of medicines is not confined to pharmaceutical houses, since they do not produce many of the medicinal chemicals, volatile oils and other products which may be said to constitute a large portion of their raw materials. Many of these products, however, must pass through the hands of the pharmaceutical manufacturer in order that they may be put in a form suitable for use. It is not easy to draw the line between pharmaceutical manufacturing and the closely allied industries as their fields of activity will frequently be found to overlap; for instance, the study and manufacture of certain alkaloids have been left almost entirely to pharmaceutical chemists and manufacturers although most of the alkaloids have been produced by distinctively chemical manufacturers.

Few industries have been as dependent upon the work of the chemist as that of pharmaceutical manufacturing. Many industries have been developed up to a certain point without the direct assistance of the chemist, but the very beginnings of pharmacy and chemistry were closely linked together and pharmaceutical manufacturing was made possible by the work of the early chemists. It is true that pharmaceutical manufacturing has not always kept pace with the progress in chemistry, yet the chemist, although at times very imperfectly trained, has always been an indispensable factor in the development of the industry and today the successful manufacturers are those who are making use of the most recent

*From symposium on the contributions of the Chemist to American Industries. Paper presented at the 51st meeting of the American Chemical Society, Seattle, Wash., reprinted from the Journal of Industrial and Engineering Chemistry.

discoveries in chemistry and medicine and to that end have built up organizations of well trained and highly specialized scientific workers.

The work of the chemist in the pharmaceutical industry has been characterized by the development of new products and improvement in the quality of products already established rather than by any reduction in manufacturing costs, although at the present time much attention is also being given to the latter problem. For many years it has been the custom of the more progressive pharmaceutical manufacturers to devote considerable sums of money to research along the various lines connected with their business, and for this reason much of the credit for the development of our present materia medica should be given to them. Chance and uncertainty in pharmaceutical manufacturing have been largely eliminated, and while ten or fifteen years ago much of the routine manufacturing could be carried on without the direct supervision of the chemist, it is now necessary to have every crude material thoroughly examined, every process controlled and every finished product assayed or inspected by competent chemists.

Among the earlier improvements, due entirely to the pharmaceutical chemist, the standardization of preparations made from vegetable drugs deserves especial mention. The crude drugs were found to vary enormously in strength and as their active principles became known and assay processes were developed, the manufacturers adjusted their preparations so that they were always of uniform strength. At that time the only pharmacopœial standard for such preparations was the fixed amount of drug used in their manufacture and the preparations when finished of course varied according to the strength of the drug from which they were made. The standards established by the manufacturers were based upon the strength of an average prime drug and the quantity of drug required varied inversely with its strength. Most of these standards were adopted by the Pharmacopœia many years later. This like many other improvements made by the chemist in this industry resulted in increased costs not only on account of the analytical work required, but also because of the greater care necessary to maintain these standards.

Thousands of different products are manufactured by every pharmaceutical house, and it has been the duty of the chemist during the past twenty-five years to study these products in order to discover their faults and improve them by modernizing the methods of manufacture. On account of the great number of products to be studied and the diverse problems involved, progress may seem slow, but if we look back even ten years we cannot fail to recognize the great improvement which has been made in the general line of pharmaceutical products. The keeping qualities of many products have been thoroughly studied, although only a few years ago very little was known in regard to the stability of medicines. Much remains to be done, and progressive manufacturers are sparing no effort to improve the quality and raise the standards of their products.

Many of the older classes of pharmaceutical products, however, are rapidly giving way to new medicinal agents which are established on a scientific foundation. This necessitates research with the object of developing new products to take the place of those which are falling into disuse, for the manufacturer who neglects this will see his business gradually going to his competitor who is awake to this necessity. Extracts and tinctures made from vegetable drugs can hardly

be considered scientific products even though standardized to a definite content of the active principles since they always contain many other substances which are either inert or possess undesirable physiological activity. Alkaloids and other definite principles isolated from vegetable drugs have already, to a large extent, taken the place of the various extracts and we may expect even greater progress in this direction during the next few years. The preparation of active extracts and definite principles from the ductless glands is one of the remarkable developments of the last fifteen years. Most of us have witnessed with interest the increase in synthetically prepared medicines from a very small beginning to a point where they are made to meet almost every therapeutic indication. The continued advance along the line of rational and exact medication has led the manufacturer to develop many of these new and improved therapeutic agents.

In one respect the position of the pharmaceutical manufacturer differs from that of manufacturers in other lines. The U. S. Pharmacopœia, a book of standards published under the authority of a convention whose members are appointed by various medical and pharmaceutical bodies, and the National Formulary, published by the American Pharmaceutical Association, have been made the legal standards for all preparations and substances described by them. It is evident that such legal standards are necessary and that the manufacture of medicinal products should be very carefully controlled. This being granted, it is very important that the standards be correct and the control judicious. The U. S. Pharmacopœia is revised decennially by a revision committee chosen by the convention already referred to. In making this revision the committee draws upon the published or privately communicated work of chemists and pharmacists and to some extent upon work carried on under its own direction. Much of the work of chemists for the manufacturing houses has been utilized in the compilation of the Pharmacopœia. Since the revision committee is a representative body in which all classes interested in the preparation and use of medicinal products have a voice, probably no better standards could be established, but it must be recognized that the progress which necessitates the revision of the book every ten years also renders many of the old standards obsolete long before the new edition appears. The National Formulary is a valuable book which was designed to serve as an unofficial guide in preparing commonly used preparations which were not described by the Pharmacopœia and its elevation to the rank of a legal standard seems to have been due to a misconception of its function.

While these two standards have been legalized by the Federal Food and Drugs Act, a very wise clause was inserted in the act which provides that preparations may differ from the standards so established if the standard be *plainly* stated on the label. This clause allows uninterrupted progress during the interval between revisions of the Pharmacopœia and insures new material and improved standards for the use of each revision committee. It is this clause which now enables the chemist to contribute actively to the manufacture of medicinal products.

In some quarters the repeal of this provision of the law has been advocated and since it has such an important bearing upon the relation of the chemist to pharmaceutical manufacturing, it should receive our careful consideration. The repeal of this clause would make it unlawful to market any product which differed in any way from the product described by the Pharmacopœia or National For-

mulary; manufacturers therefore could not profit by any improvement which they might make and all research tending toward the improvement of such products would be discontinued. When it is remembered that the most important medicines are described in the Pharmacopœia, that many are included in the National Formulary which afterward find their way to the Pharmacopœia, and that many of the articles dropped from the Pharmacopœia are subsequently inserted in the National Formulary, it will be seen that no more effective bar to progress in the production of medicinal products, than the elimination of this clause from the law, could be devised. It may be pointed out that the standardization of extracts and tinctures as well as many other improvements could never have been introduced by manufacturers if no variation from pharmacopœial standards had been allowed. Under such a law while manufacturers in every other line would be stimulated by competition to improve their products, the manufacturer of medicines would be legally prohibited from doing so. The contributions of the chemist to this industry would then be confined to routine analytical work and to the development of products which could be protected by patents; all improvements in medicinal substances now included in the National Formulary and Pharmacopœia would have to be made by the committees of revision with limited time and facilities and without manufacturing experience. It seems doubtful if such a law could be enforced, but if the matter is placed before our law-makers in the proper light, there can be no doubt that the federal law will remain unchanged and that the state laws will conform to it in this respect. If this course is followed, the progress in this industry, which has never been as rapid as at the present time, will be uninterrupted.

FEDERAL JUDGE HOLDS THAT MAIL ORDER DRUG HOUSES CANNOT SELL MEDICINES CONTAINING HABIT-FORMING DRUGS BY MAIL.

Medicines containing habit-forming narcotic drugs, traffic in which is forbidden by the Harrison law, cannot be sold through a mail order business, Judge J. E. Sater decided in Federal District Court at Columbus, Ohio, December 4. He dismissed a suit brought by the Dr. Nathan Tucker Asthma Specific Company of Mount Gilead, Ohio, to enjoin B. E. Williamson, Federal Internal Revenue Collector, from seizing the plant.

The court's decision declared medicines containing narcotic drugs may be prescribed by physicians only after a personal examination of the patient before each prescription. Diagnosis by mail is held illegal.

The decision is considered of far-reaching importance, since other proprietary remedies contain narcotic drugs or their derivatives and are sold by the mail order system.

REPORT OF THE COMMTITEE ON UNOFFICIAL STANDARDS.

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the Journal in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, George M. Beringer, 501 Federal St., Camden, N. J.

CARAMEL
Caramel

Saccharum Ustum. Burnt Sugar Coloring.

A concentrated aqueous solution of the product obtained by heating sugar or glucose, to which has been added a small amount of alkali or alkali carbonate, until the sweet taste is destroyed and a uniform dark brown mass results.

Caramel is a thick, dark, brown liquid having the characteristic odor of burnt sugar and a pleasant bitter taste.

Specific gravity not less than 1.35 at 25° C.

On spreading in a thin layer on a glass plate, it appears homogeneous, reddish-brown and transparent.

Caramel mixes clear with water in all proportions. One part dissolved in one thousand parts of distilled water, yields a clear solution having a distinct sepia tint and the color of the solution is not changed or precipitated after exposure to sunlight for six hours.

It is soluble in diluted alcohol, but it is precipitated when the alcoholic content of the solution is increased to 80 percent by volume or more.

It is insoluble in ether, chloroform, acetone, benzene, petroleum benzin or turpentine.

20 mils of an aqueous solution (1-20), is not precipitated on the addition of .5 mil of phosphoric acid.

On incinerating Caramel, it swells and leaves a coke-like charcoal, which burns off only after prolonged heating at a high temperature, and leaves not more than 8 percent of ash.

CHIONANTHUS
Chionanthus

Chionan. Fringe Tree Bark.

The recently gathered bark of the root of *Chinonanthus Virginica* Linné (Fam. *Oleaceae*), with not more than 8 percent of other parts of the plant or foreign matter.

Usually in transversely curved pieces, occasionally in single quills, 1 to 10 cm. in length; bark 2 to 10 mm. in thickness; heavy, some pieces of the whole drug sinking when thrown into water; outer surface usually reddish-brown, occasionally grayish-brown, few transverse wrinkles, whitish cork patches and root scars; inner surface yellowish-brown, more or less striate and undulating; fracture short, hard, and coarsely granular due to projecting groups of stone cells; the broken surface of a light yellowish-white color.

Odor characteristic; taste bitter.

The powdered drug is light brown in color and when examined with the microscope exhibits; somewhat rounded, simple or 2-4 compound starch grains, mostly 0.003 to 0.010 mm. in diameter, occasionally up to 0.020 mm.; numerous stone cells, in groups and isolated, the walls thick, strongly lignified and with simple or branching pores; fragments consisting of light brownish thin walled cork cells; a large amount of parenchyma tissue, with many of the cells filled with starch grains. Chionanthus yields not more than 5 percent of ash.

CORYDALIS

Corydalis

Turkey Corn. Squirrel Corn.

The dried tubers of *Dicentra canadensis* (Goldie) Walp., usually somewhat mixed with the dried bulb-like portions of *Dicentra Cucullaria* (L) Bernh., (Fam. *Fumariaceae*), with not more than 5 percent of other parts of the plants or of foreign matter.

The tubers are rounded and frequently vertically depressed, the flattened surface more or less concave, up to 15 mm. in diameter; usually single, rarely two or more in a cluster; externally, minutely pitted or nearly smooth, grayish-brown, grayish-black or amber colored and more or less translucent; one of the flattened surfaces with a triangular scar from detached roots, the other usually with remains of the slender rhizome; fracture, hard and horny, exhibiting a yellowish waxy interior, or somewhat tough and granular exhibiting a yellow-white interior; nearly odorless; of a bitter taste.

The grains of the granulate bulb of *Dicentra Cucullaria* are plump ovoid or triangular ovoid and up to 12mm. in length; the larger grains distinctly concave on one surface, with a scar at the apex from the detached petiole, and usually attached to the short root-stock in clusters of three; the smaller grains usually separated from the rootstock, with an acute apex and a scar at the base; externally, yellowish or grayish-brown, usually translucent; fracture, hard and horny exhibiting a grayish waxy interior or granular and tough exhibiting a whitish interior; nearly odorless; of a slightly bitter taste.

The powdered drug is of a light yellow or of a yellowish-gray color, and when examined with the compound microscope exhibits: numerous oval, ovoid or oblong simple starch grains, the broad end of the grain sometimes truncate, up to 0.060 mm. in length and frequently with a cleft or horseshoe shaped fissure in the small end of the grain; occasionally two compound grains; altered starch grains up to 0.090 mm. in length; numerous angular or rounded parenchyma cells isolated or in groups and containing more or less altered starch grains the outlines of which are indistinct; tracheae few with reticulate, simple pores, annular or spiral markings; fragments of epidermal cells with thin brownish walls; sclerenchyma fibers very few or wanting; few characteristic sclerotic cells from the root stock of *Dicentra Cucullaria* irregular in outline, mostly elongated up to about 0.750 mm. in length and 0.100 mm. in width, walls heavily lignified and porous and about 0.020 mm. thick, occurring isolated or in groups of from two to four; very few sclerotic cells from the rhizome of *Dicentra canadensis*, mostly isodiametric, uniformly smaller than in *Dicentra Cucullaria* and with walls about 0.012 mm. thick, not distinctly irregular in outline; a very few rosette aggregates of calcium oxalate, up to 0.020 mm. in diameter, from the portions of rhizome of *Dicentra canadensis*.

An infusion prepared by placing 5 grammes of ground or powdered corydalis in 100 mils of hot distilled water, stirring occasionally during ten minutes and then filtering is of a light amber color, gives an alkaloidal ppt. with potassio-mercuric iodide T. S. and a dark blue color with Iodine T. S. (soluble starch).

Corydalis yields not more than 8 percent of ash.

MATICO

Matico.

The dried leaves of *Piper angustifolium* Ruiz and Pavon (Fam. *Piperaceae*) with not more than 5 percent of stems, flower spikes, or foreign substances.

Usually in compressed, matted masses with leaves more or less broken. Leaves subsessile, lanceolate, 10 to 20 cm. long, 2 to 5 cm. broad; apex tapering and acute; base slightly unequal, cordate; margin finely crenulate; upper surface dark green tessellated; lower surface pale green, reticulate with prominent yellowish-brown midrib and veins forming small quadrangular meshes clothed with matted pubescence.

Odor distinct, aromatic; taste pungent, pepper-like.

Sections viewed under the microscope exhibit: The epidermis, that of the upper side composed of regular polygonal cells and of the lower side of somewhat irregular and bent cells especially where covering the veins; numerous stomata and large bordering cells on the lower side; the hypoderm of 1 row and palisade cells in 2 or 3 rows; mesophyl of loose, spongy tissue; midrib in cross section oval, outer layer of thick walled

cork cells; secretion cells filled with yellow oil; upper surface with papillae and few bristly hairs; hairs of the lower surface of two kinds, the one 6 to 10 cells long, pointed, bent and matted and with thick walls and streaked cuticle; the other bristle hairs of one stem cell and a cap cell; calcium oxalate crystals few in parenchyma tissue of the venation, some raphides, others tabular.

Powder greenish-yellow and under the microscope exhibits the characteristic hairs, polygonal epidermal cells, and secretion cells of the leaf.

Matico yields not more than 18 percent of ash.

OLEUM BETULAE EMPYREUMATICUM RECTIFICATUM

Rectified Empyroligneous Oil of Birch.

Rectified Oil of Birch Tar. Oleum Rusci Rectificatum.

The empyroligneous oil obtained by the dry distillation of the bark and wood of *Betula alba* Linne (Fam. *Betulaceae*), rectified by steam distillation.

Limpid, dark brown liquid having a penetrating empyreumatic, tarry odor resembling that of Russian leather.

Specific gravity: 0.886 to 0.950.

It yields clear solutions with three times its volume of either absolute alcohol, ether, chloroform, glacial acetic acid, amyl alcohol, turpentine, benzole and carbon disulphide; not more than slightly turbid with the same volume of alcohol or purified petroleum benzin, and a decidedly turbid mixture with the same volume of methyl alcohol.

Warm 2 mils with 10 mils of distilled water, agitate and allow the mixture to cool, separate and filter the aqueous liquid. It should be colorless, have a strong empyreumatic odor and an acid reaction. 2 drops of potassium dichromate T.S. added to 4 mils of the aqueous filtrate produces a bright yellow solution which becomes darker and turbid. 1 drop of dilute ferric chloride solution (1 in 100) added to 4 mils of this filtrate produces a green coloration which changes to brown and becomes turbid (Distinction from Oil of Cade).

VANILLA

Vanilla Bean.

The cured, full-grown, unripe fruit of *Vanilla planifolia* Andrews (Fam. *Orchidaceae*).

Pods linear, flattened, from 15 to 35 cm. in length and from 5 to 9 mm. in breadth; summits terminating in flat circular scars; gradually tapering, more or less bent and curved or hooked at the bases, or in the Tahiti variety, broad in the middle and tapering towards either end, the base closely resembling the summit; externally blackish-brown, longitudinally wrinkled, moist-glossy, and occasionally with an efflorescence of vanillin in the form of acicular crystals or monoclinic prisms; frequently with narrow, elliptical or irregular, more or less wrinkled, dark-brown patches of cork; occasionally split into three parts near the tip, flexible and tough, 1-locular, containing a blackish-brown pulp and numerous blackish-brown seeds; the latter being flattened, irregularly triangulate or nearly circular in outline, reticulate and varying from 0.250 to 0.300 mm. in diameter; odor and taste characteristic and very agreeable.

Under the microscope, transverse sections of the pods of Vanilla show an epidermis with a somewhat thickened outer cuticularized layer having occasionally rounded or conical masses of the excretion of a gum-like substance; a layer of collenchyma of 1 or 2 rows of cells; a thick sarcocarp composed of parenchyma cells in which are imbedded an interrupted circle of fibro-vascular bundles; the parenchyma cells are deeply undulate in outline and usually contain a thin protoplasmic layer enclosing numerous oily globules or may contain bundles or raphides of calcium oxalate, the individual crystals varying from 0.200 to 0.400 mm. in length; some of the parenchyma cells are specially modified and distinguished by their somewhat thickened walls with long, oblique, slit-like pores or the thickening may extend in the form of broad, spiral bands; in the fibro-vascular bundles the phloem is central, being more or less surrounded by a few tracheae, the walls possessing slit-like pores or spiral thickenings, and at the outside of the bundle is a closed circle of sclerenchymatous fibers, the walls being thin, strongly lignified, pro-

vided with numerous, transverse, simple pores, the outer wall of the outer row of fibers being irregular or sinuate; from the inner walls of the endocarp arise the placentae bearing numerous brownish-red or blackish seeds; otherwise from the cells of the endocarp arise numerous long, nearly straight hairs, the ends being rounded, the hairs being more or less matted together by a gummy or resinous mass in which some of the seeds are held; in mounts made in hydrated chloral T. S. or potassium hydroxide T. S., the immature, brownish-red seeds show a deeply reticulate seed-coat, the cells being of an oblong-polygonal form in surface view.

Place a few of the crystals, occurring as an efflorescence on the fruit, on a microscope slide or watch crystal and add a drop of phloroglucinol T. S. and hydrochloric acid, the solution immediately should acquire a carmine-red color (distinction from *benzoic acid*).

The amount of extractive, using dilute alcohol, should be not less than 12 percent.

Vanilla yields not more than 6 percent of ash.

STREET DIRT, UNPROTECTED FOOD AND DISEASE.

Prof. C. H. La Wall, chemist of the Pennsylvania dairy and food commission, is said to have found the following assortment of objects and substances in raisins exposed for sale on a Philadelphia street: Pieces of prunes; beans and rice; strands of human hair and cat fur; cotton and wool fiber; straw and bits of bran; insect wings and legs; cigar and cigaret ashes, and a yellowed cigaret paper. While it does not appear that any of these unappetizing accessories were exactly proved to be carriers of contagion, the findings strongly suggest the possibilities of infection from food sold from uncovered pushcarts and stands.

THE VISCOSITY OF LIQUID PARAFFIN.

The importance of the viscosity of liquid paraffin is engaging the attention of medical men. *The London Lancet* has shown that the viscosity is more important than the specific gravity, for whereas the specific gravity may be the same for different samples the viscosities vary considerably. The higher the viscosity the more suitable is the oil for medical use as an internal lubricant. The viscosity at 100° F. (Redwood) varied in a series recently examined from 440 to 67 seconds. Medical men are awakening to the importance of high viscosity in liquid paraffin, and pharmacists may receive inquiries on this matter.

NOTICE TO EXCHANGES, ADVERTISERS, CORRESPONDENTS, ASSOCIATIONS, BOARDS OF PHARMACY, MEMBERS, BRANCHES OF A. PH. A., ETC.

The Office of the Journal of the American Pharmaceutical Association has been moved from 63 Clinton Building, Columbus, Ohio, to Philadelphia Drug Exchange, Bourse Building, Philadelphia, Pa. All communications, publications, etc., for the Journal and Editor, E. G. Eberle, should be addressed accordingly.

Editorial Notes and Announcements

E. G. EBERLE, Editor.....Columbus, Ohio

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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A NEW FOOD?

The daily papers are apt to report as new and wonderful discoveries familiar things or those not of such recent discovery, but unfamiliar to their readers.

The story, to which the title has reference, is reported about as follows: "A bacteriologist in one of the trenches of Belgium discovered a mold which possessed a wondrous power of turning sugar into fat. Another yeast had been discovered which with the assistance of ammonium sulphate, will produce a considerable percentage of protein or 'meat'."

We do not desire to say that practical application will not be made and possibly a serviceable food will be developed, but the idea of utilizing yeast as food is not new nor, of course, the fact that starch and sugar and some form of nitrogen are converted into fat and protein. This is what occurs in animal and vegetable life.

Yeast in some form or other has been for ages and is now used as food and medicine. At one time it was quite extensively employed in the treatment of diabetes, because of its action on sugar. Experiments were made several years ago to determine the food value of yeast, when it was found that in limited amounts it was not objectionable, but prolonged or more extended diet produced disturbance of the digestion.

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NOBEL PRIZES AWARDED.

The Nobel prize for physics has been awarded to Professor Meed von Laue of Frankfort-on-the-Main, for his discovery of the diffraction of rays in crystals. The chemistry prize has been awarded to Professor Theodore William Richards of Harvard University, for fixing the atomic weights of certain elements. Professor Richards is director of the Gibbs memorial laboratory at Harvard, and a member of the International Commission on Atomic Weights. In 1910 he was awarded the Davy medal by the Royal Society of Arts and Sciences and in 1912 he received the Willard Gibbs medal from the American Chemical Society.

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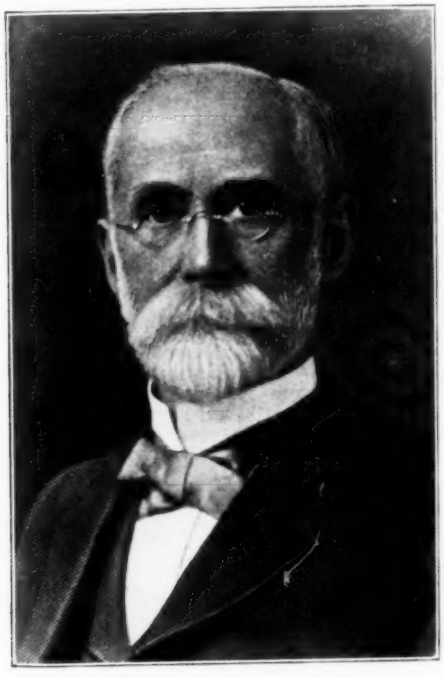
SUBSTITUTE SPECIFICS SEIZED

Recently throughout the country, worthless imitation drug products have been seized by officials in charge of the enforce-

ment of the Food and Drugs Act. Itinerant peddlers are selling these imitations, made up and labeled similar to the preparations they are intended to represent. They do not confine themselves to the drugs, but dispose of them in tablet and other forms for administration. The reference is made because some of these venders are very persuasive and there is no limit to their assurance.

Obituary



SAMUEL A. D. SHEPPARD
Treasurer of the American Pharmaceutical Association from 1886-1908

While not unexpected, because of the enfeebled health of Mr. Sheppard, the news of his death came as a shock to his many friends. We regret deeply that the Journal is not in position to have a more extended reference of this lamented friend and member, but in the next issue further tributes will be published.

We know that ex-President John G. Godding will pardon our making use of a communication addressed to Secretary J. W. England of the Council A. Ph. A., and received just before completing this number of the Journal. The letter follows:

"You probably have learned of the passing away of our dear friend, S. A. D. Sheppard with pneumonia, on Sunday, November 28th. He was on his way to Pinehurst, N. C., stopping over with his son Robert at Newton Centre, where he was taken ill and passed away surrounded by relatives and friends. Funeral was from the son's residence, Wednesday, December 3d, and was largely attended. Members of the Board of Trustees of the Massachusetts College of Pharmacy and representatives from other pharmaceutical organizations were present. The services were conducted by the Rev. Mr. Cleaves, the pastor of the church which he attended at Newburyport during the summer. Interment was at Newton Cemetery. The floral offerings were many and beautiful.

"This removes one of the best known Pharmacists in New England, a genuine lover of his profession who has given liberally of his time and money for its interest. Personally I lose a friend of long acquaintance begun at the M. C. P. as classmate and working with him later for the interests of the M. C. P. our friendship strengthened as years passed by. A man of sterling character, companionable and lovable, considerate of those who did not agree with him. Thus the world loses a good citizen.

"His last appearance in public was last May at the Massachusetts College of Pharmacy Commencement where in the presence of a large audience he was given an Honorary Degree. His acceptance was in his usual bright and cheery manner with much good advice to those graduating.

"His passing away was as peaceful and beautiful as the life he had lived. We are better for having known him and fortunate to have been included in the circle of friends. His works and deeds will remain a monument to his memory.

Signed, JOHN G. GODDING."

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DERWENTWATER KIRKLAND

Derwentwater Kirkland, one of the most widely known drug men on the Pacific Coast, died on November 1, at the Fremont Hotel, Los Angeles, Cal. He was born on the high seas when his mother and father were enroute to Canada from Australia. He received his education and degree of pharmacy in Canada, and went to California in 1876, where he engaged in the drug business.

Some years later he conceived the idea of organizing a drug corporation to operate a string of retail stores throughout the western coast states and formed the Owl Drug Company, being elected its president. Six years ago, he resigned the presidency of the Owl Drug Company and retired, but later, with his brother, John Kirkland, organized the American Drug Company, which now has two large stores in Los Angeles. During the forty years he was in business in California, Mr. Kirkland made a host of friends. He became a member of the American Pharmaceutical Association in 1889. He was sixty years of age, and is survived by one sister and three brothers. J. W. E.

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DR. JOSEPH A. HEINTZELMAN

Dr. Joseph Augustus Heintzelman, a member of the American Pharmaceutical Association since 1858, aged eighty-one years died at his residence, 2000 Ridge Avenue, Philadelphia, on October 19, 1915. For 51 years he has been a practicing physician and pharmacist in the neighborhood where he lived. He was graduated from the Philadelphia College of Pharmacy in 1859. He was prominent in the Masonic fraternity and in various German organizations. Dr. Heintzelman was a genial, lovable pharmacist of the old fashioned school, and loved his profession.

Dr. Heintzelman is survived by two sons and a daughter, one of the sons being Dr. Joseph Heintzelman, Jr. J. W. E.

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DEATH OF MRS. MERRELL

Mrs. Cornelia Spear Merrell, widow of the late George Merrell, for many years president of the Wm. S. Merrell Chemical Company, and one of the best known pharmaceutical men in the country, died at the family residence in Cincinnati on November 12th, surviving her husband but eleven months to the day.

Mrs. Merrell was the eldest daughter of Samuel and Rachael Spear. She was but twenty and Mr. Merrell twenty-one when they were wedded. Their married life was a most ideal one and so tenderly united were they that Mrs. Merrell never rallied after the death of Mr. Merrell. Even those who were most near and dear to her felt that in her passing—it was as she would have wished it—for they are now together.

Mrs. Merrell was most active in club work in Cincinnati, where her executive ability was always most highly appreciated.

Surviving her are two brothers, Joseph C. Spear, secretary of the Spring Grove Cemetery Association, and George Spear, president of the St. Louis Edible Nut Company, and three sons, Stanley W. Merrell, one of the judges of the Superior Court, and Charles G. and Thurston Merrell, actively connected with the Merrell Company.

The Bulletin Board

Bulletin VI—Financial report of the National Committee on the Pharmaceutical Syllabus, September 28, 1914, to July 31, 1915.

RECEIPTS.

Sale of 144 copies of the Syllabus and a/c postage on same	$164.71
Contribution from American Pharmaceutical Association	25.00
Contribution from American Conference of Pharm. Faculties	25.00
Contribution from National Association of Boards of Pharmacy	25.00
Proceeds of note for $200, due September 18, 1915, to Paul Revere Trust Company, Boston	195.87
Total	$435.58

EXPENDITURES.

C. F. Williams & Son, balance on bill for printing	$242.95
Henry L. Taylor, repayment of cash advanced	115.82
Postage	21.35
Printing letterheads, envelopes, order blanks, etc.	14.75
Typewriting and duplication of bulletins	11.00
Express charges	3.74
Stencil paper for bulletins	3.40
Premium, insurance on plates for printing Syllabus	2.00
Exchange on checks	1.70
Total	$416.71
July 31, 1915, cash on hand	18.87
	$435.58

BROOKLYN, N. Y., Nov. 5, 1915.

This is to certify that I have compared this report with the books and vouchers of the Secretary-Treasurer, and find the same to be correct.

WILLIAM C. ANDERSON, Auditor.

The receipts from the sale of the Syllabus include a small amount received and forwarded by Dr. Henry L. Taylor, the preceding secretary-treasurer.

Some copies were sold at $1.00 each and others at $1.25, plus postage.

The note to the Paul Revere Trust Company was made by vote of the executive committee and the proceeds were used to pay all other indebtedness. When this note came due in September, $100 was paid on it and a new note for $100 given for the balance.

All twenty-one members of the committee voted affirmatively on Motion 271, to allow the Journal of the American Pharmaceutical Association to use the committee's plates of portraits of deceased pharmaceutical workers. The plates have been forwarded to Editor Eberle and several have already been used.

The president of the American Pharmaceutical Association has appointed George M. Beringer to succeed himself on the Committee, also Professor P. Gerhard Albrecht for the unexpired term of Henry L. Taylor, resigned.

The National Association of Boards of Pharmacy has elected Ellis E. Faulkner to succeed Charles Gietner and the American Conference of Pharmaceutical Faculties has elected Theodore J. Bradley to succeed himself.

With these changes the Committee now has the following membership:

From American Pharmaceutical Association:

Term Expires

1916. William B. Day, Chicago, Ill.
1917. Willis G. Gregory, Buffalo, N. Y.
1918. P. Gerhard Albrecht, Cleveland, Ohio.
1919. Charles Caspari, Jr., Baltimore, Md.
1920. Eugene G. Eberle, Dallas, Tex.
1921. Harry B. Mason, Detroit, Mich.
1922. George M. Beringer, Camden, N. J.

From National Association of Boards of Pharmacy:

1916. William Mittelbach, Booneville, Mo.
1917. John W. Gayle, Frankfort, Ky.
1918. William H. Rudder, Salem, Ind.
1919. George C. Diekman, New York, N. Y.
1920. Mason C. Beebe, Burlington, Vt.
1921. John Culley, Ogden, Utah.
1922. Ellis E. Faulkner, Delton, Mich.

From American Conference of Pharmaceutical Faculties:

1916. Henry H. Rusby, Newark, N. J.
1917. James H. Beal, Urbana, Ill.
1918. Charles W. Johnson, Seattle, Wash.
1919. Clement B. Lowe, Philadelphia, Pa.
1920. William C. Anderson, Brooklyn, N. Y.
1921. Julius A. Koch, Pittsburgh, Pa.
1922. Theodore J. Bradley, Boston, Mass.

Respectfully submitted,

THEODORE J. BRADLEY,
Secretary-Treasurer.

Boston, November 15, 1915.

Societies and Colleges

STATE BOARD "GUARANTEED."

Up to the present time candidates can take the State Board Examination as pharmacist in New Jersey without any preliminary education and without being graduates of recognized colleges of pharmacy. A number of "fakers" have taken advantage of this.

For years there have been rumors that certain parties were getting sums of money from students on the assurance that through friendliness or "pull" with members of the State Board they could have students passed. Sums ranging from $50.00 to $300.00 have thus been extracted from the victims.

Naturally these rumors have been anything but pleasing to the board members, and while they have been prosecuting an investigation, they have been unable, up to this time, to obtain evidence, it is understood, that would warrant laying the matter before the authorities for prosecution.

In addressing the 160 persons who were taking an examination at the State House in Trenton, New Jeresy, President Strauss told them that it was unwise to pay out their money under such promises. It was pointed out that persons could legally give them instructions, but when they accepted money with the inference that through influence or pull with the members of the Board they would be passed, these individuals were going too far.

It is reported that evidence has been secured against one of these "fakers" who is now held by the Grand Jury of Hudson County. No doubt this will act as a warning against other "fakers" who are obtaining

money under false pretenses from their victims. It is also high time that such practices be stopped by the enactment of a law requiring college of pharmacy education in New Jersey.

OTTO RAUBENHEIMER, Phar. D.

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

Work of the Association.—The American Association for the Advancement of Science will hold its next convocation-week meetings in Columbus, Ohio, from December 17, 1915, to January 1, 1916, under the presidency of Dr. William Wallace Campbell, Director of the Lick Observatory, Mt. Hamilton, Cal.

The annual meetings are usually attended by two thousand or more of scientific men and women and it is expected that the coming meetings will surpass previous meetings in the importance of their scientific programs.

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PERFUMERS PLAN CAMPAIGN AGAINST STAMP TAX.

By a unanimous vote, members of the Manufacturing Perfumers' Association of the United States placed that organization on record as unalterably opposed to the proposed re-enactment by Congress of the emergency revenue stamp tax on perfumes, cosmetics and similar toilet articles and made plans for preventing the passage of such a measure in the forthcoming session of Congress, at a special meeting, held November 15, in the Hotel Biltmore, New York City.

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MEETING OF THE EXECUTIVE COMMITTEE OF THE ILLINOIS PHARMACEUTICAL ASSOCIATION.

The semi-annual meeting of the Executive Committee of the Illinois Pharmaceutical Association was held at the office of the Secretary in Chicago on Tuesday, November 16, 1915.

There were present at the meeting, President J. H. Riemenschneider, Third Vice-President J. R. Phillips, Secretary W. B. Day, Executive Committeemen H. J. Holthoefer, I. M. Light, John Lueder, J. P. Crowley, J. J. Boehm, L. P. Larsen, H. F. Schaper, O. H. Mentz, W. D. Duncan, H. C. Porter, Hugh Marshall, H. O. Hartley, C. F. Frison, W. F. Baum, G. M. Bennett, E. H. G. Kreiling, R. A. Clarkson, P. L. Gain, F. L. Pfaff, J. C. Wheatcroft and G. W. Bower, also Mr. J. H. Wells of the Legislative Committee and F. M. Mares of the School of Pharmacy Committee.

The report of the Treasurer was read and showed a balance in the treasury as follows: In the general fund $1252.14, in the permanent fund $600.00, in the Beal prize fund $100.00.

The President reported verbally outlining the Membership campaign which is being carried on successfully with the aid of a committee of one hundred members. President Riemenschneider urged the members of the Executive Committee to give their earnest aid in furthering this membership campaign.

The Secretary reported verbally and stated that more than one hundred new members had been received since the last annual convention; an excellent start for the membership campaign.

President Riemenschneider announced his intention of bringing the total up to five hundred new members before the next convention. He stated that the Illinois Pharmaceutical Travelers had pledged their cordial support and had already sent in a number of applications.

A letter from Mr. R. E. Dorland, Chairman of the Legislative Committee, making suggestion as to proposed legislation was read. Upon motion of Mr. Boehm it was ordered that one or more letters be sent to all the druggists of Illinois as soon as Congress meets to urge the druggists to write their congressmen at once opposing further imposition of stamp taxes and favoring the Stevens Bill.

Upon motion of Mr. Crowley it was ordered that the Chairman of the Legislative Committee be instructed to formulate a program for proposed legislation and present this program at the annual convention in Springfield next June.

It was decided that the Secretary should take care through his office of such bills for printing and postage as will be necessary for the work of the Committee.

Upon motion of Mr. Wells it was decided that the Propaganda campaign be deferred until the annual meeting on account of changes now being made by reason of the

revision of the U. S. Pharmacopœia and National Formulary.

The nominations for the voting cards for Board of Pharmacy and Advisory Board were then considered. The Chicago members in caucus presented nominations of Chicago members for these voting cards. The committeemen from the other congressional districts presented names of the members in their districts. By vote the President and Secretary were authorized to fill vacancies. The complete list follows:

CANDIDATES FOR THE BOARD OF PHARMACY.

Congressional Districts 1 to 10 inclusive—Bruno Schultz, Chicago; Theophilus Schmid, Chicago; W. T. Adams, Chicago; Frank Dubsky, Chicago; John J. Chwatal, Chicago; John Myers, Chicago; T. Mygdal, Chicago; Harry Moyer, Chicago; Jacob Topf, Chicago; Fred O. Schmidt, Chicago; District 11, Edwin Hall, Elgin; District 12, E. J. Feurer, LaSalle; District 13, Fred Skeyhan, Rockford; District 14, P. D. Roark, Macomb; District 15, R. C. Webster, Canton; District 16, John Kneer, Jr., Peoria; District 17, W. T. Shorthose, Bloomington; District 18, C. F. Ehlers, Danville; District 19, Archer T. Davis, Decatur; District 20, Byron Armstrong, Jacksonville; District 21, Stuart Broadwell, Springfield; District 22, G. A. Hartnagel, E. St. Louis; District 23, C. F. Greer, Centralia; District 24, W. A. Ball, Carmi; District 25, Thomas Rixleben, Jonesboro.

CANDIDATES FOR THE ADVISORY BOARD UNIVERSITY OF ILLINOIS

Congressional Districts 1 to 10 inclusive—George McDonald, Chicago; Louis A. Schmid, Chicago; Wm. P. Knoche, Chicago; Paul Finninger, Chicago; Samuel Antonow, Chicago; George Horn, Chicago; W. T. Knick, Chicago; George Moyen, Chicago; Andrew Scherer, Chicago; John V. Lee, Evanston; District 11, P. M. Fahrner, Joliet; District 12, C. J. Lutz, Ottawa; District 13, Gus Kirchner, DeKalb; District 14, E. Jericho, Moline; District 15, T. B. Shaffer, Oneida; District 16, Albert Zimmerman, Peoria; District 17, A. F. Reinders, Mt. Pulaski; District 18, Peter X. Senger, Danville; District 19, Geo. Cunningham, Champaign; District 20, F. S. Tarbill, Havana; District 21, W. E. Claypool, Springfield; District 22, J. W. Gain, E. St. Louis; District 23 L. H. Reed, Centralia; District 24, Ferne E. Peters, West Salem; District 25, F. M. Hewitt, Carbondale.

Upon motion of Mr. Wells it was decided to extend an invitation to some prominent pharmacist to address the next annual convention. The arrangements were left with the President and Secretary.

A discussion then ensued as to the arrangement of the program and the annual convention. Upon motion of Mr. Light it was ordered that the business program be prepared by the President and Secretary.

The following resolution was offered:

"WHEREAS, The National Drug Clerk, published at Chicago, has been and is now advocating measures and principles which, if put into effect, will materially increase the expenses of the already overburdened retail druggists throughout the State of Illinois. Be it

Resolved, That the advocacy of such measures and principles by the National Drug Clerk are considered by the executive committee of the Illinois Pharmaceutical Association, inimical and detrimental to the interests of retail druggists, and that those who aid or encourage the publication or advocacy of such matters are, in our opinion working against the interests of, and for conditions that may ultimately cause the financial ruin of many retail druggists."

The resolution was quite fully discussed and was carried without division.

Upon motion of Mr. Light the President was instructed to appoint a committee of three to investigate the securing of greater publicity for the Association work generally.

The meeting then adjourned.

W. B. DAY, Secretary.

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STATE UNIVERSITY OF IOWA, COLLEGE OF PHARMACY.

The Short Course Drug Conference was postponed from November 12 and 13 to Nov. 30 and Dec. 1.

Among the speakers were Dean F. J. Wulling, of Minnesota, Dr. J. H. Beal, of the University of Illinois, and H. B. Mason, of Detroit.

The following topics were discussed by the speakers:

Elements of Competition

Efficiency as applied to the Management of a Drug Store.

Advertising.

Knowing your Goods.

Accounting.

Economics of Business.

Store Arrangement and Decoration.

Salesmanship.

Store Management.

Discussion of the Stevens Bill.

Discussion of the Harrison Law.

Phi Delta Chi held their Founders' Day banquet on Friday, November 5, at the chapter house on Clinton St.

Dr. C. S. Chase acted as toastmaster and responses were given as follows:

The San Francisco Convention of Phi Delta Chi, Dean W. J. Teeters.

Professional and Academic Fraternities, Prof. R. A. Kuever.

Inconsistencies, L. K. Fenelon.

The Fraternity from the Standpoint of an Alumnus, H. F. Doden.

Phi Delta Chi as We are and as We Hope to Be, J. C. Liek.

Out-look of a Pledge, R. D. Stewart.

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COLLEGE OF PHARMACY, UNIVERSITY OF MICHIGAN.

A silver loving cup, to be known as the A. B. Prescott Scholarship Cup, will be awarded by the National Organization to the chapter of Phi Delta Chi which ranks highest in scholarship. The chapter winning it for three years in succession will be entitled to retain it permanently.

Azor Thurston, of the class of '84, has established a "Scholarship Prize" of $25, which will be awarded annually to the active chapter of the Phi Delta Chi which obtains the highest average grade. There will be some keen competition from now on and the results will be awaited with great interest.

Wilber F. Jackman of Detroit, Mich., A.B. '86, Ph. C. '87, formerly Professor of Pharmacy in the College of Pharmacy of the University of Maine, has associated himself with Professor Charles H. Rogers, Ph.C. '11, on the teaching staff of the newly organized College of Pharmacy of the University of West Virginia, Morgantown, W. Va.

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COLLEGE OF JERSEY CITY.

The Department of Pharmacy of this College has adopted the standards of the Regents of New York, beginning with the Collegiate year 1915-16. At the meeting of the Board of Regents of the University of the State of New York, held in Albany, on October 21, 1915, the Department of Pharmacy of the College of Jersey City has been officially recognized and has thus become a Registered College of Pharmacy. Consequently, the graduates beginning with May, 1916, are enabled to take the State Board Examination for Licensed Pharmacist in the State of New York.

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NEW YORK COLLEGE OF PHARMACY.

The Membership Committee of the Board of Trustees presented applications for membership from the following gentlemen, who were elected at the last Trustees' meeting: Samuel Albert, Joseph Altman, Richard A. Austin, Frank A. Coleman, Jerome A. Crane, Emanuel J. Emelin, Philip Fitz, B. C. Gould, Frederick W. Kaye, J. C. Keogh, G. C. Klippert, Bela Kramer, John Leverty, John A. Leikauf, George W. Luft, William A. MacDonald, George Phillips, Edward Plaut, Robert Plaut, J. W. Reed, E. R. Rogers, David Schwartz, William L. Snow, Harry E. Steinhilber, Rudolph Theis, M. R. Thurlow, Adolph Wiegand, J. Warren Wiley, A. W. Yates.

It is a source of great satisfaction that the retail pharmacists of New York City are showing a new interest in the work carried on by the College. This institution was founded and is maintained under the supervision of an association composed almost entirely of retail druggists, with the main object of preparing young men to become efficient and valuable clerks in their stores. As every registered pharmacist in this state must be a graduate of a recognized college of pharmacy, it should be of personal interest to every druggist to see that the College in his city is in a position to present the best in pharmaceutical education. It is the aim of the Trustees and present members to have every retail pharmacist in New York City a member of the College. The College has lost by death, in recent years, some of its best friends, and although their places have been taken by those who are carrying on the work in the same progressive and wholly satisfactory way, still it is necessary, in looking to the future, to continually add new blood to the organization. The number of new

members already elected this year is a big step in the right direction.

The Senior class of the College has elected the following officers: President, G. Harold Dowsey; Vice-President, Mrs. Estella J. Baddour; Secretary, Victor Johnson; Treasurer, Conrad Klingele; Historian, Miss Mary E. Meier.

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CHICAGO VETERAN DRUGGISTS' ASSOCIATION.

The meetings of the Chicago Veteran Druggists' Association should stimulate the druggists of every large city to organize for like purposes. Such organizations offer the opportunity for those who are closely linked to early pharmacy of this country to reminesce and inform the younger generation of the progress in pharmacy that is being made. It keeps the older members young in spirit and permits them to enjoy happy companionship.

At the Detroit meeting of the American Pharmaceutical Association it was resolved to encourage similar organizations by the Branches. Evidently little has been done in that direction but the Chicago Association continues to enjoy the meetings and profits thereby.

Recently the 86th birthday of Honorary President O. F. Fuller was appropriately observed, a farewell celebration was tendered member Albert Hunt who departed for California to join with members Jamieson and Patterson, and a memorial meeting was held in memory of F. J. Schroter.

Thus it is that good cheer and deep sorrow formulate the program of these gatherings. Those who have passed away are remembered, and the living enjoy the pleasures of fraternity.

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TWO COMPOUNDS OF EMETINE WHICH MAY BE OF SERVICE IN THE TREATMENT OF ENTAMEBIASIS.

A review of the history, chemistry and pharmacology of ipecac, with the suggestion that emetine mercuric iodide and emetine bismuthous iodide be used in the treatment and also in the prophylaxis of entamebiasis. Emetine mercuric iodide is prepared by precipitating an acidified aqueous solution of emetine hydrochloride with Mayer's reagent, collecting, washing the precipitate with water and drying in the air, below 50°. Emetine bismuthous iodide is prepared in a similar way by the use of Dragendorff's instead of Mayer's reagent. Theoretically these compounds should be decomposed only slightly in the stomach, but should liberate emetine in the intestinal tract. The compounds may be given in doses of 0.03 gm. without causing nausea or vomiting.—Chemical Abstracts.

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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NEW YORK.

Minutes of the regular meeting of the New York Branch of the American Pharmaceutical Association held at the New York College of Pharmacy Building, October 11th, 1915, called to order by President Lascoff at 8:40 p. m.

Upon motion the minutes of the May meeting were adopted as printed in the Journal of the A. Ph. A.

Upon motion the reading of the minutes of the special memorial meeting held in September was dispensed with and they were adopted.

The Treasurer's report was received with thanks.

Mr. McElhenie, member of the Council, reported asking for the opinion of the Branch as to how they wished him to vote on the question of Professor Diehl's proposed salary.

Dr. H. V. Arny read a letter he had sent to Dr. H M. Whelpley and stated that he believed that Prof. Diehl's many years of service to the Association merited this slight token. After considerable discussion favorable to the motion before the council, Mr. McElhenie was informed that the Branch favored the paying of the said salary.

Reports of Committees:

Membership—Absent.

Legislation and Education—Progress.

Progress of Pharmacy—Absent.

Reports of delegates to the annual meeting of the A. Ph. A. Former President Mayo presented a very interesting report on

the social activities of the San Francisco meeting.

Former President John C. Gallagher of the New Jersey Pharmaceutical Association reported on the meeting held at Spring Lake last June.

President Charles J. McCloskey of the N. J. Pharmaceutical Association was called upon by the Chair and supplemented Mr. Gallagher's remarks.

Professor Geo. C. Diekman sent a letter regretting his absence and enclosed a detailed report of the New York State meeting, which was read by the secretary.

All the above reports were accepted with the thanks of the Branch.

A communication from President Lascoff, appointing the following as a Committee on Resolutions, was received: Messrs. Diner, Diekman, Bigelow, Arny, Lascoff, Weinstein and Hostmann.

Applications for membership were received from Dr. Philip Eichler and Mr. J. S. Potter and were ordered sent to the General Secretary.

Prof. Arny then read a paper on "Standard Colored Fluids," which was illustrated with many interesting exhibits.

The paper was discussed by Messrs. Wimmer, Diner, Raubenheimer, Mayer and others, and was accepted with the thanks of the Branch.

A percolator for the manufacture of tincture of iodine was then exhibited. After some discussion the consensus of opinion was that it was not of any practical value.

President Lascoff then gave a very successful and interesting demonstration of his new "Capsule and Ampule Filler." This called for a very animated discussion taken part in by Messrs. Diner, Wimmer, Raubenheimer, Mayo and others.

The thanks of the Branch were extended to the President and the meeting then adjourned.

JEANNOT HOSTMANN, Secretary.

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SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on November the ninth in the office of the Pacific Pharmacist. Dr. A. Schneider, the president, presided. The minutes of the October meeting were read and approved.

A communication from Secretary Day was read and the question of increasing the membership was put before the members. A wide-awake campaign will be commenced immediately for new members.

During the review of current pharmaceutical literature, extracts from the Journal of the American Medical Association, Mercks Report, the Druggists' Circular, Journal of the N. A. R. D., A. Ph. A. Journal and other valuable publications were given. Formulas for the preparation of castor oil in powder form and for cod liver oil jelly were discussed. Mention was also made of the Autolysin treatment for cancer, and it was said that this treatment offers nothing better than the older methods.

The affairs of the Branch will be in charge of the following newly elected officers: President, Joseph L. Lengfeld: Vice-President, Jennie Maguire White: Secretary-Treasurer, Clarissa M. Roehr. The December meeting will be held on the fourteenth, 723 Pacific Building.

CLARISSA M. ROEHR, Secretary.

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NASHVILLE.

The regular meeting of the Nashville Branch A. Ph. A. was held in a joint session with the Nashville Drug Club in the Music Room of the Nashville Y. M. C. A., Thursday afternoon, Nov. 18th, with D. J. Kuhn presiding. After the minutes were read and approved, Congressman Joseph W. Byrns was introduced, who explained the provisions of the Stevens Bill and stated many good reasons why he thought the bill should be enacted. He said that most of the work of Congress was done by committees and that the passage of the bill depended largely on having it reported favorably by the committee to which it was referred.

Letters were read from Senator Luke Lea and ex-Governor M. R. Patterson, favoring the measure. The bill was then discussed at length by different members. The point was brought out that Senator Stevens, the author of the bill, had been defeated and that someone else would have to reintroduce it at the next session of Congress.

On motion of W. R. White, a resolution was passed requesting Congressman T. W. Sims to support the measure. Congressman Sims is a member of the Committee on Interstate and Foreign Commerce to which the bill was referred. Similar letters were or-

dered sent to all the other Tennessee Senators and Congressmen. Gus A. Blodou was instructed to prepare a friendly reply to the North Nashville Medical Society in answer to a communication received from them criticizing local druggists.

A paper reviewing the current drug journals was read by Dr. J. O. Burge.

The question of prescription prices was then discussed, after which the Branch adjourned.

WILLIAM R. WHITE, Secretary.

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NORTHWESTERN BRANCH.

The first 1915 Fall meeting of the Northwestern Branch of the American Pharmaceutical Association was held at the Nicollet Hotel, Minneapolis, on Friday evening, Oct. 22nd. The business meeting and program for the evening were preceded by a dinner beginning at 7 p. m. Under the heading of new business, the secretary offered a motion providing for the endorsement by the Branch of the Stevens Bill and the principles contained therein. The motion received a second by Mr. Chas. H. Huhn and was unanimously carried.

Letters of regret at inability to be present at the meeting were read as received from R. J. Messing, President of the Minnesota State Pharm. Association; William Abbett of Duluth and Max Menzel of Pipestone, Minn.

After the brief business meeting, the following program was carried out:

1. How a Pharmacopoeia Is Revised, by Prof. H. M. Whelpley, Dean of the St. Louis College of Pharmacy and Treasurer of the American Pharmaceutical Association.
2. The National Association of Boards of Pharmacy, by Mr. H. W. Rietzke, President of the Minnesota State Board of Pharmacy.
3. The American Conference of Pharmaceutical Faculties, by Dean F. J. Wulling.
4. A Further Report of the Study of Spirit of Nitrous Ether, by Prof. Gustav Bachman.
5. Recent Judicial Opinions on the Harrison Anti-Narcotic Law. Discussion by Messrs. Huhn, F. A. U. Smith, Tupper, Wulling, Morland, Frost and others.
6. The San Francisco Pharmaceutical Meetings. An Incompatible Prescription. Drugs Produced in Minnesota in 1915, by E. L. Newcomb.

H. M. Whelpley, Dean of the St. Louis College, as a member of the Board of Trustees of the U. S. Pharmacopoeial Revision Committee, spoke at length and in detail on how the U. S. Pharmacopoeia is revised. The several headings in the following outline were well covered by the speaker:

The Pharmacopoeia Far-Reaching; Pharmacopoeia Defined; Early Pharmacopoeial Revision Work; Recent Pharmacopoeial Revision Work; Influence of the Food and Drugs Act; Medical Influence on the Pharmacopoeia; Why Pharmacists Have Not Deserted the U. S. P.; The Scope of the U. S. P.; Legal Status of the U. S. P.; Work of a Pharmacopoeial Convention; and How the Committee on Revision Works.

Dean H. M. Whelpley of the St. Louis College of Pharmacy examining specimens of the root systems of Rheum palmatum and Rheum officinale in the Medicinal Plant Laboratory of the College of Pharmacy of the University of Minnesota. Photograph through courtesy of Professor E. L. Newcomb.

The work of the Committee on Revision goes on so quietly that no one realizes the nature or full extent of the task. The General Committee consists of fifty-one members who work without salary or assurance of adequate remuneration. This large body finally passes on all questions brought before it and must approve the Pharmacopoeia as a whole before the pages are electrotyped for printing. Each of the fifty-one members has

a large ring cover in which to file the recent correspondence. The letters are mimeographed on legal cap size sheets. The pages are numbered consecutively and the letters dated and numbered. Canvas binders are furnished, each holding five hundred sheets of the accumulated correspondence. Thus each member has a complete set of valumes covering all the work of the General Committee. The last circular is numbered 326, dated October 16, 1915, and closes with page 1876. This means that 95,676 sheets like this exhibit were mimeographed and mailed to fifty-one members of the General Committee on Revision. The General Committee is divided into fifteen sub-committees on different subjects. Each one of the smaller committees has a chairman who conducts correspondence with the associates on his committee. Each member of a sub-committee has a full set of all the correspondence of the committee. As some persons serve on two or more committees, this correspondence becomes very voluminous. The Executive Committee of fifteen receives the reports of subcommittees and votes on them before subjects go to the General Committee for approval. The last Executive Committee letter is Number 651 and is on page 3358, October 9, 1915. These are mimeographed on letter size sheets. The Executive Committee has to date required a total of 52,370 sheets. This, together with the General Committee sheets, makes a total of 148,046 sheets to date. As sheets of both circulars and letters in addition to the above are sent to five trustees, we must add 28,170 sheets, making a grand total of 176,216 sheets exclusive of the over run for reserve sets. It is probable that at least 200,000 sheets have been mimeographed to date, including the work of mimeographing and mailing, we can allow one minute's time for each sheet. This is the equivalent of 3,333 hours, or 416 days of eight hours each. This makes no allowance whatever for the work of individual members of the committee in studying, experimenting and commenting on the information contained in these sheets. This statement of mechanical labor will give some idea of the mental work which has thus far been recorded. It is merely the summing up of the committee work, which in turn is based on the work of individual pharmacists, the world over. The pharmacopoeial work of the American pharmacists is, indeed, the great work of the pharmacists of this decade. Subjects of interest are:

Digest of Comments on the U. S. P.; Board of Trustees of the U. S. P. Convention; The Sale of the Pharmacopoeia; Spanish Translation of the U. S. P.; Payment for Use of U. S. P. Text; Authority to Use for Comment; Pharmacopoeial Income; Pharmacopoeial Expenses; Honoraria for Pharmacopoeial Work; The Chairman of the Committee on Revision; Proof Reading on the Pharmacopoeia; U. S. P. Publicity; The New Pharmacopoeia; How the Pharmacopoeia Should Be Revised.

*After the address by Dean Whelpley, Mr. Rietzke referred to the organization of the National Association of Boards of Pharmacy, its function and usefulness, and explained the methods employed by the Minnesota Board for granting reciprocal registration.

Dean Wulling spoke briefly concerning the intimate relationship between the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties.

Prof. Bachman presented in tabulated form a detailed report of the rapidity of deterioration in spirit of nitrous ether, which had been kept under varying conditions. The table elicited a lively discussion in which the following took part: Messrs. Rietzke, Wulling, Friedman, Newcomb, and Dr. Rock.

Mr. Chas. H. Huhn opened the discussion on recent judicial opinions on the Harrison Anti-Narcotic Law. The discussion was continued by Messrs. Morland, Tupper, Kline, Griffin, Von Rohr and Goodrich. In closing, Mr. Huhn stated that if there was a loophole in the Harrison Anti-Narcotic Law, the National Association of Retail Druggists would exert every effort possible to have the law amended or so changed that the effect of the law would be as desired by the pharmacists.

Dr. Newcomb in referring to the San Francisco Pharmaceutical meetings, directed the attention of the members to the reports in the pharmaceutical journals and called particular attention to the large number and variety of papers which were presented in San Francisco. He also called attention to a prescription which called for Tincture of Iodine, Ammonia Water and Collodion in equal parts, stating that the mixture was in-

* Dean Whelpley's address proved most interesting and instructive, especially to those who have not had actual experience in the revision of the Pharmacopoeia. A vote of thanks was tendered Dean Whelpley for presenting the instructive paper.

compatible, on account of the stronger ammonia water being an aqueous preparation, which gives a precipitate of cellulose from the collodion, and that physicians who desire to use this preparation should prescribe the Spirit of Ammonia, which being an alcoholic preparation, is compatible with Collodion.

About 20 specimens of drugs produced from medicinal plants grown in the medicinal plant garden of the College of Pharmacy of the University of Minnesota during 1915 were exhibited by Dr. Newcomb. Special attention was called to a specimen of the root system Rheum Officinale, which showed the large rhizomes from which Shensi Rhubarb is prepared. Among the specimens exhibited were Belladonnae Folia, Hyoscyamus, Stramonium, Cannabis sativa, Phytolacca, Marubium, Chenopodium, Belladonnae Radix, Inula, Digitalis and Datura tatula, the leaves of which will be official in the U. S. P. IX.

In closing, Dr. Newcomb called attention to the use of Powdered Abrus in the treatment of the advanced stages of trachoma. A specimen of whole Abrus or Jequirity seed was exhibited, and the toxic nature of the drug referred to. Recent prescriptions in the Northwest have called for Abrus in the form of a fine powder. The speaker also stated that the drug was sometimes used in the form of a 4 percent infusion, prepared with normal salt solution. The use of Abrus was further discussed by Mr. Morland, who referred to the use of the drug in Europe.

Among those outside of the Twin Cities who attended the meeting should be mentioned Mr. Robert Morland of Worthington, Minn.; Mr. Arthur VonRohr of Winona, Minn.; and Mr. George H. Goodrich of Anoka, Minn.

A total number of about 60 were present.

E. L. NEWCOMB, Secretary.

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WEST VIRGINIA.

The West Virginia Branch of the A. Ph. A. met Friday evening, November 5th, at Woodburn Hall, West Virginia University, and was called to order by President W. A. Ream. The following gentlemen were appointed to the Committee on Pharmaceutical Education: C. A. Neptune of Parkersburg and W. H. Moore and A. B. Berry of Morgantown.

Professor C. H. Rogers read a very interesting paper on "Fakes," giving the results of analyses of a number of the most prominent ones.

Mr. Jackman gave a talk on "Scale Salts of Iron." Mr. Jackman showed a thorough knowledge of the subject.

A feeling of good fellowship pervades these meetings and they are thoroughly enjoyed by all.

A. B. BERRY, Secretary.

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PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Tuesday, night, November 9th, at the Temple College of Pharmacy.

President Henry called the meeting to order at 8:15 o'clock and the minutes of the last meeting were read and approved. There being no new or unfinished business, the program of the evening was taken up.

John K. Thum, Ph.G., presented "A Review of Pharmaceutical Literature."

Prof. Charles E. Vanderkleed gave a very interesting account of his experience in "Europe in War Times."

The remainder of the evening was devoted to a spirited discussion of the subject, "Is Tetanus Caused by Vaccination?"

Dr. F. E. Stewart read a paper on the subject and his view that tetanus is not caused by vaccination was upheld by Dr. Wadsworth and Dr. J. F. Schamberg, but was rather violently opposed by C. Oscar Beasley, President of the Pennsylvania Anti-Compulsory Vaccination Society.

J. ED. BREWER, Secretary.

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CITY OF WASHINGTON.

The initial meeting of the City of Washington Branch of the American Pharmaceutical Association, 1915-16, was held Wednesday, October 27, 1915, at the National College of Pharmacy. The attendance was fair and the subjects for discussion were the annual meeting of the A. Ph. A., by Professor Henry P. Hynson, Baltimore; and the annual meeting of the N. A. R. D., by Mr. J. Leyden White.

Mr. Hynson presented his subject in a very humorous manner and created much amusement telling anecdotes incident to the trip and meeting. He recalled that everything

good of a pharmaceutical nature had been started by the A. Ph. A.; that this was true of the San Francisco meeting in the work accomplished in harmonizing the schools and boards, resulting in a closer relationship between the American Conference of Pharmaceutical Faculties, National Association of Boards of Pharmacy and the American Pharmaceutical Association. The determination to work for pre-requisite requirements and four years of high school education by 1920 seemed to be satisfactory to all interests.

The report of the Commission on Proprietaries was in his judgment the best piece of work that had been started in years by the A. Ph. A., and was more than commendable. He suggested that a coalition of all pharmaceutical bodies would be desirable and should be established under the auspices of the A. Ph. A. He pointed out that the membership had fallen to about 3,000, that the Council was too large to transact business satisfactorily, and that the financial condition of the organization was not the best at the present. In his judgment the establishing of higher educational qualifications would result in the elimination of unendowed teaching institutions, unless those interested would work to bring about assistance from the State and this could be done on the grounds of public safety. Mr. Hover's paper showing the profit on the prescription end of the business was worthy of careful study, as it showed from reliable statistics that this part of the business amounted to about 13 percent net profit, going to show a good reason for more commercialism in pharmacy these days.

Mr. J. Leyden White was unable to be present and his paper was presented by the Secretary. He pointed out a satisfactory financial condition of the N. A. R. D. due principally to the income from its Journal. The all-absorbing issue of this convention was the question of standardization of selling prices and the endorsement of the Stevens bill. This measure, in its broadest sense, was so constantly in evidence at the convention as to represent the chief reason for the existence of the Association. The Association reaffirmed and vigorously declared its determination to preserve the identity of the drug store as a pharmacy. Propaganda movement failed to show any great advancement. It was, however, decided to continue this work. The Harrison narcotic law was a feature and while some dissatisfaction existed with reference to T. D. 2213, they were unanimously of the opinion that much more had been accomplished in a few months than was ever expected. The creation of a Committee on Postal Affairs was an innovation that should bring about much good. The relation of liquor to the drug store was discussed and the conclusion reached that it had its place in pharmacy, (this was questioned by the members present) and that nothing could be done at present nor until internal revenue laws were amended, and that house-cleaning, if any were needed, would have to be deferred.

Both papers elicited much discussion that was entered into by all members present. Some of the facts brought out by Mr. Hynson resulted in the following resolutions being presented by the Secretary:

WHEREAS, The Council of the American Pharmaceutical Association has very profitably and wisely largely grown in the number of its members and has become a desirable and effective working body at the annual meetings; and

WHEREAS, A Council of this size can not be maintained and its business properly transacted by mail; therefore,

Be it resolved, That it is the sense of the Local Branch of the American Pharmaceutical Association of Washington, D. C., that the Council should be authorized to elect three members, who, together with the Chairman and the Secretary of the Council, shall constitute an executive committee, this committee to be empowered to carry on the business of the Association as mapped out at its annual meeting during the intervals of the said annual meetings. A resolution was also presented relating to the finances of the Association and providing for a special committee. (This is now being considered by the Council.)

After discussing same, both resolutions were unanimously approved and the Secretary directed to forward them to the Secretary of the Council.

The Secretary presented a communication received from the Deputy Commissioner of Internal Revenue, relative to T. D. 2241, authorizing the use of formula No. 19, equal parts of ethyl alcohol and ether, and providing this special denatured alcohol for use in the manufacture of Collodion. This com-

munication was most interesting, in view of the fact that the department holds that collodion is a varnish and not a medical preparation and that the use of this special denatured alcohol in the manufacture of collodion is permissible *only* where the collodion is entirely free from medicinal properties.

S. L. HILTON, Secretary.

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BALTIMORE.

Minutes of the November meeting of the Baltimore Branch of the American Pharmaceutical Association, held Wednesday, November 17th, at 8 p. m. The notice of the meeting read: Of the three important events scheduled for this month, one happened on the Tuesday after the first Monday, one is to occur on the Wednesday after the third Tuesday, and the other is to be celebrated on the Thursday after the last Wednesday. All of us who could, should have exercised, and it is to be hoped, that in the near future, some of us who couldn't will exercise the suffrage on the first of these three happenings. All of us can and, we are sure, will, enter at least privately, if not publicly, into the spirit of the last of these celebrations. All of us ought to be present at the occurrence between the first and last of these events and help make this another good meeting of the Branch. We are to have with us Dr. Herman Engelhardt, who was the Chairman of the Scientific Section of the American Pharmaceutical Association, and he is to review the work of this Section.

THE JOURNALS.

Six of the Journals have been assigned to as many different members, and we are to have presented, for our information and discussion, one or more articles from each.

Dig out something interesting from your Journal, bring it along and discuss it with us.

The Secretary has promised, if time permits, to tap his Odoriferously Historical Eight-barreled-mothball-sale paper for our amusement if not for our edification.

A paper by Dr. Engelhardt was presented in which he reviewed the work of the Scientific Section of the parent association, and the part which caused most discussion was that which considered Professor Scoville's paper on "Tinctures."

Professor Scoville had carried out experiments covering a period of four years in order to find out whether or not tinctures made from fluidextracts were just as effective and stable as those prepared by the U. S. P. processes, and his conclusion was: "On the whole, tinctures made from fluid extracts compare very favorably with those made direct from the drugs; in the case of the standardized tinctures, the strength is necessarily the same and the stability is fully as good, if not better." The inference as to non-standardized of course being that, as those which could be subjected to chemical and physiological tests were all right, the others must be.

In the discussion it was brought out that one pharmacy of an exceedingly high reputation possibly owed considerable of its success to the uniformity and reliability of its tinctures, which were made from assayed fluidextracts wherever possible, and this method was contrasted with the practice of some pharmacists dispensing unassayed tinctures made from assayed and even unassayed drugs which might or might not represent the proper strength.

The absurdity of the Pharmacopœia directing that tincture of nux vomica be made from a powdered extract when it already recognized an assayed fluid extract, was pointed out.

In this connection, however, it was emphasized that infusions and decoctions must never be made from fluid extracts as the menstruum used was entirely different.

The final clearing up of the difference of opinion between the Branch and one of the Journals by the latter conceeding the non-solubility in oils as well as non-miscibility of ichthyol with oils by the Journal publishing a paper on the subject, which was the result of the Branch's activities, brought out, that the proper way in which to incorporate ichthyol with fats in ointments was to spread a thin film of the fat over considerable of the surface of the ointment slab and to place the ichthyol on this, add the rest of the fat and incorporate immediately. Any portion of ichthyol allowed to stick to the slab or exposed unprotected for even a short while to the air was likely to dry out hard and form specks which would not rub out and which would make the ointment unsightly.

Along the line of solubility, the sparing

solubility of phosphorus in chloroform was discussed and the pharmacopœia was criticised for directing phosphorus to be so dissolved in making pills of phosphorus.

With great difficulty it is soluble in chloroform and it was suggested that the best form in which to incorporate it into pills is by using phosphorized resin.

The formation of the poisonous quinotoxin in long-standing combinations of aspirin and quinine salts was considered and the statement was made that a pharmaceutical house had put out thousands of boxes of compressed tablets containing among other ingredients these two chemicals, and had been putting them up for years and not a single case of bad symptoms had been reported. The well-known idiosyncrasy of some persons to quinine was cited as possibly being the cause of the reported bad effects.

The ruling of the Bureau of Chemistry that a drachm is the one-sixteenth of an avoirdupois ounce was thought unfortunate as reviving an obsolete weight and the sense of the meeting was that it ought to be reconsidered and the apothecary's drachm, or sixty grains, be declared official.

Mr. Meyer presented a prescription calling for: Copaiba, 4 drachms; balsam peru, 2 drachms; oil of turpentine, 2 drachms, and syrup of lemon sufficient to make 6 ounces.

Several different ways of mixing this were tried and each seemed a little worse than the other. The balsam peru being the disturbing factor. Several took down the formula and are to report at the next meeting as to their success or lack of it.

In commenting on the new Pharmacopœia it was pointed out that there will be many changes in it and it will be almost necessary for pharmacists to go to school again and that already classes were being formed in other cities to learn of the changes and to become familiar with them, and, with this end in view, the Executive Committee was instructed to endeavor to arrange for a series of lectures on the new U. S. P. to be given by Dr. Caspari and to be under the auspices of the Branch.

The Executive Committee was instructed to confer with the proper committee from the Retail Druggists' Association in an effort to hold a joint meeting with them in December, at which the assistant advertising manager of one of the local papers was to be the principal speaker. The subject was to be along the lines of "Drug Store Advertising" and the idea was the outcome of a somewhat similar topic along other lines in which the advertising of proprietary preparations was considered.

A committee consisting of Miss Patterson, Mr. Lowry, Mr. Meyer and Mr. Neal was appointed to work out a different form of organization or to effect a readjustment along the lines of a compact body, the membership of which was to be small but thoroughly active and alive and that on special occasions the entire pharmaceutical interests could be invited to attend and at the regular meetings would be welcome, but that the notices of the latter would be sent only to the actual active membership.

As the hour was so late, adjournment was made and the Secretary did not read his paper on Moth-ball Sales, and, as it was along the line of advertising, it could better be considered at the next meeting.

WM. J. LOWRY, JR., Secretary.

I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble, or a prettier shell than ordinary whilst the great ocean of truth lay all undiscovered before me.—*Isaac Newton.*

The Pharmacist and the Law

DENATURED ALCOHOL PERMISSABLE IN MAKING NON-MEDICATED COLLODION.

Mr. S. L. Hilton has sent us the following which is a copy of a reply to his letter and is quoted in part. The specially denatured alcohol is made by mixing equal parts of ethyl alcohol and ethyl ether:

I have made a careful examination of the letter from S. L. Hilton, Washington, D. C., dated the 11th instant, relative to T. D. 2241, authorizing the use of denatured alcohol in the manufacture of U. S. P. Collodion. He makes three points in his argument as to why this T. D. should be revoked:

1st: That collodion is a medicine.

2nd: That collodion is mixed with other medicinal agents and that these compounds are medicinal.

3rd: That retail druggists in certain cases have the habit of making collodion and by reason of T. D. 2241, and the inability to obtain specially denatured alcohol, they would be unable to compete with larger manufacturers.

I think point No. 3 is immaterial to this office as it is simply an economic discussion.

In regard to point No. 1, I would quote from Wood's Therapeutics, page 630:

"Collodion—This is a solution in alcohol and ether of pyroxylin or soluble guncotton, which consists chiefly of the tri- and tetranitro-cellulose; upon evaporation collodion leaves on the skin an adherent protecting film. Physiologically, *guncotton is inert.*"

It would, therefore, seem according to Wood that Collodion is not a medicine.

In regard to point No. 2, I would state that undoubtedly when collodion is mixed with iodine and other true medicinal agents some medicinal action would be exerted upon the human skin, therefore, there might be some question as to whether collodion manufactured from denatured alcohol should be used in such a preparation. However, since such preparations are only applied externally and before the effect is obtained the denatured alcohol is all evaporated. I would think it a very narrow construction of the law to revoke the permission in this instance.

As stated above I believe that there is no question but what U. S. P. collodion is not in any sense a remedy or medicinal preparation.

Respectfully,
(Signed) A. B. ADAMS,
Chief Chemist.

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AMENDMENTS TO NEW YORK HEALTH BOARD MEDICINE REGISTRATION ORDINANCE.

The New York Health Board has amended the Medicine Registration Ordinance so that the third paragraph of Section 117 now reads:

The expression "proprietary or patent medicine," for the purposes of this section, shall be taken to mean and include every medicine or medical compound, manufactured, prepared or intended for internal human use, the name, composition or definition of which is not to be found in the United States Pharmacopœia or National Formulary, or which does not bear the names of all the ingredients to which the therapeutic effects claimed are attributed and the names of all other ingredients except such as are physiologically inactive, conspicuously, clearly and legibly set forth, in English, on the outside of each bottle, box or package in which the said medicine or medicinal compound is held, offered for sale, sold or given away.

Subdivision e of Section 116, relating to misbranding reads:

(e) If any proprietary or patent medicine to which the provisions of sections 117 of this Code relate shall fail to contain every ingredient the name of which shall have been filed in the Department of Health, pursuant to section 117 of this code as a constituent part of said medicine, or if such proprietary or patent medicine shall contain any ingredient the name of which is required by the provisions of section 117 of this code to be filed in the said department which name has not been so filed. (S. C. Sec. 69.) (The provisions of subdivision (e) shall take effect December 31, 1915.)

PROPRIETARY MEDICINE MEN TO FIGHT NEW YORK FORMULA DISCLOSURE ORDINANCE.

Characterizing the adoption of the proprietary medicine formula disclosure and registration ordinance of the New York City Health Board as "an arrogant assumption of a power which is non-existent in that board," members of the Proprietary Association of America voted as a body, at a special meeting, held in the Hotel Astor, New York City, on November 16 and 17, to ignore the provisions of section 117 of the local Sanitary Code, embodying this ordinance. The association also voted to offer legal and financial aid in the defense of any and all distributors of their goods who may be subjected to prosecution by the local health department for handling medicinal preparations which have not complied with the provisions of the ordinance by filing their qualitative formulas and registering with the Health Department authorities after December 31, when this ordinance becomes operative.

It was also voted at this meeting to safeguard the interests of the proprietary medicine industry against such emergency revenue taxation as that which has been levied upon perfumes and cosmetics through the stamp tax which became effective December 1 of last year and which Congress may attempt to continue through a re-enactment of Schedule "B" of the Emergency Revenue Act, after December 31 of this year.—From Paint, Oil and Drug Reporter.

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WAR DEPARTMENT

List of changes of stations covering period ending October 31, 1915, in the cases of Sergeants First Class, and Sergeants Hospital Corps.

SERGEANTS FIRST CLASS.

Richard A. Wood, from on furlough in the U. S., to Frankford Arsenal.

Paul M. Lange, from Ft. Clark, to the Philippines Department.

Eugene Weber, from Ft. Barry, to ordered to the Philippines Department.

Fred O. Wells, from Ambulance Company No. 3, to the Philippines Department.

Richard T. Edwards, from the 13th Cavalry Hospital, at Columbus, N. M., to the Philippines Department.

Maynard Heatherly, from the 6th Cavalry Hospital, Southern Department, to the Philippines Department.

Charles M. Shaw, from Ambulance Company No. 5, to Ft. Porter.

Julius Strauss, from Rock Island Arsenal, ordered to Ft. Omaha.

Elmer H. Simons, from the Office of the Surgeon, Port of Embarkation, to Rock Island Arsenal.

John L. Collins, from Field Hospital Company No. 1, to the Philippines Department.

John Hodgins, from Ft. Monroe, to Ft. Michie.

Hans Hoch, from the 17th Infantry Hospital, Eagle Pass, Texas, to Ft. Washington.

John Keralla, from Ft. Washington, to Ft. Wood.

Christopher Killikelly, from Ft. Wood, to Field Hospital Company No. 6.

Charles G. Manning, from Ft. George Wright, to Ft. Apache.

Max Dohle, from Ambulance Company No. 2, to the Philippines Department (ordered).

George J. Shull, from Ft. Thomas, to the Philippines Department (ordered).

Henry Aicklen, from Field Hospital Company No. 3, to the Philippines Department (ordered).

Charles R. Bartlett, from Ft. Worden, to the Philippines Department (ordered).

William F. Coleman, from the Cantonment Hospital, Galveston, Tex., to the Philippines Department (ordered).

Frederick Thomas, from Ft. Crockett, to the Philippines Department (ordered).

SERGEANTS.

William J. Maney, from Ft. Jay, to Ft. Totten.

Joseph Levy, from Plattsburg Barracks, to Ft. Jay.

Robert D. McElrath, from Ft. Yellowstone, to Ft. Bliss.

Arthur Bade, from Ft. Totten, to Ft. McKinley.

Edward H. Krog, from Key West Barracks, to Plattsburg Barracks.

Charles W. Jensen, from the Cable Boat "Joseph Henry," to the Organized Militia of Rhode Island.

George C. Daily, from Ft. Sam Houston, to Ft. Sheridan.

James F. Griffin, from the Philippines Department, to the Letterman General Hospital.

Rex M. Davenport, from Ft. Oglethorpe to Ft. Barrancas.

Everett E. Maddison, from Field Hospital Company No. 3, to ordered to the Philippines Department.

Richard Bennett, from Ft. Totten, to San Juan, P. R.

Andrew J. Billings, from the 2nd Division, Texas City, Texas, to Ft. Sheridan.

Changes of Address

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

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FLAKE, W. L.
From residence unknown
To Water Valley, Miss., (former address.)

BROMME, WM. L.
From E. Kalispell, Mont.
To Anamoose, N. D.

METZGER, ARTHUR S.
From Cairo, Ill.
To Malden, Mo.

HAESSLER, L. M.
From 1960 W. Madison St., Chicago, Ill.
To 1947 W. Madison St., Chicago, Ill.

STORER, C. A.
From Cor. Rush & Ohio Sts. Chicago, Ill.
To 4105 Kenmore Ave., Chicago, Ill.

TUPPER, E. A.
From 800 Tenth St., Minneapolis, Minn.
To Chicago and Tenth Sts., Minneapolis, Minn.

PORRO, ALVARO.
From 17 San Francisco, Camaguey, Cuba.
To Marti 23, Camaguey, Cuba.

DAVENPORT, J. S.
From residence unknown
To 6 F. A., Douglas, Ariz.

DIETZ, HENRY W.
From residence unknown
To U. S. A. Transport Merritt, Manila, P. I.

FENDER, WALTER E.
From residence unknown
To Ft. Monroe, Va.

HARDENBROOK, BURTON.
From residence unknown
To Ft. Missoula, Missoula, Mont.

LEWIS, WALTER.
From Ft. Sherman, Cristobal, Canal Zone.

MARCUS, SAMUEL.
From residence unknown
To Ft. Ward, Wash.

MCENROE, ROBT. L.
From residence unknown
To Ft. Sam Houston, Texas.

TANNEY, LEWIS.
From residence unknown
To F. H. Co. 2, Presidio, San Francisco, Cal.

WAITZ, AUGUST H.
From residence unknown
To Ft. Flager, Wash.

BERNHARD, MAGNUS.
From residence unknown
To Syracuse, N. Y.

KISHON, ADOLPH M.
From residence unknown
To 417 Flower St., Los Angeles, Cal.

BADGES AND BARS

Members who desire the official badges and bars for the meetings they may have attended are invited to correspond with the General Secretary. He is able to furnish from his stock the bars for the following meetings:

Asheville, 1894; Denver, 1895; Montreal, 1896; Lake Minnetonka, 1897; Put-in-Bay, 1899; St. Louis, 1901; Atlantic City, 1905; Hot Springs, 1908; Richmond, 1910; Denver, 1912; Nashville, 1913; Detroit, 1914; San Francisco, 1915.

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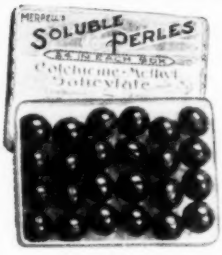

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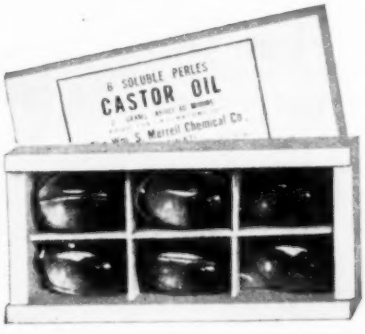

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